DOCUMENT RESUME

ED 328 112 HE 024 133

AUTHOR Koretz, Daniel; And Others
TITLE Trends in the Postsecondary Enrollment of Minorities.
INSTITUTION Rand Corp., Santa Monica, Calif.
SPONS AGENCY Ford Foundation, New York, N.Y.
REPORT NO R-3948-FF
PUB DATE Aug 90
NOTE 115p.
AVAILABLE FROM Rand Corporation, 1700 Main St., P.O. Box 2138, Santa Monica, CA 90406-2138.
PUB TYPE Reports - Descriptive (141)

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS *Black Students; *College Students; *Enrollment Trends; Higher Education; Hispanic Americans; *Minority Groups; *Postsecondary Education; *Trend Analysis

ABSTRACT

This report attempts to resolve disagreements about trends in minority enrollments in postsecondary education institutions and to examine various factors that might help explain the enrollment trends. Among the study's findings were the following: (1) in the total group of individuals, aged 18-24, the overall enrollment rate of blacks has changed little since the mid-1970s; (2) the proportion of black high school graduates, aged 18-24, that is enrolled in college has declined substantially from a peak of nearly 33 percent in the mid-1970s; and (3) the enrollment rate of Hispanic youth has been stable since the late 1970s, though it remains lower than during the peak years of the mid-1970s. Possible factors causing the enrollment trends, such as military enlistments and family income differences, are analyzed. Data sources (the Current Population Survey and the Integrated Postsecondary Education Data System) are described in an appendix. Includes 51 references. (JDD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

HE

ED328112

Trends in the Postsecondary Enrollment of Minorities

Daniel Koretz

HE 024 133

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☒ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

"PERMISSION TO REPRODUCE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY

Rand Corporation

~~Ford Foundation~~

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

RAND

The research described in this report was supported by The Ford Foundation.

ISBN: 0-8330-1101-4

The RAND Publication Series: The Report is the principal publication documenting and transmitting RAND's major research findings and final research results. The RAND Note reports other outputs of sponsored research for general distribution. Publications of The RAND Corporation do not necessarily reflect the opinions or policies of the sponsors of RAND research.

Published by The RAND Corporation
1700 Main Street, P.O. Box 2138, Santa Monica, CA 90406-2138

R-3948-FF

Trends in the Postsecondary Enrollment of Minorities

Daniel Koretz
with Elizabeth Lewis, Lenore DeSilets

August 1990

Supported by
The Ford Foundation

RAND

PREFACE

Long concerned about the status of minority Americans, the Ford Foundation requested last year that The RAND Corporation undertake a study of trends in the enrollment of minority individuals, particularly blacks, in postsecondary education. The foundation was concerned about reports that the enrollment of minority students had declined and was troubled by the inconsistent conclusions of various recent papers addressing the issue.

This report presents the results of that study. The study had two aims: first, to resolve the disagreements about the nature of trends in minority enrollments (to the extent that extant tabulations of national data permit such a resolution); second, to examine various factors that might help explain the enrollment trends—for example, changes in the academic preparedness of minority high school students.

This report is addressed to policymakers, educators, and educational administrators, as well as to researchers and others interested in the pressing issues of minority educational progress.

SUMMARY

Over the past year, many accounts in the press have raised concerns about the enrollment of minority individuals, particularly black males, in postsecondary education. Numerous articles and columns have reported that the enrollment of blacks has been declining, and many have maintained that the problem is most severe for black males. Many explanations for this problem have been offered, but the ones afforded the greatest attention by the press have been those particular to black males. Some accounts have portrayed the enrollment decline as one of many indications of a broad range of social problems confronting black males, suggesting that it may be linked to problems in other areas, such as income, health, and family composition. Other accounts have pointed to more specific factors, such as changes in the rate at which black males have been enlisting in the military rather than enrolling in college.

Taken together, these press reports have identified a serious problem but have also oversimplified and exaggerated it. Moreover, many hypothesized explanations that receive the greatest acceptance do not stand up to closer scrutiny.

In the age group for which enrollment rates are traditionally calculated (18–24), the overall enrollment rate of blacks (that is, the proportion of youth enrolled in college) has changed little in recent years, ranging from approximately 20 to 22 percent since the mid-1970s. The enrollment rate is currently at the high end of that range and matches the previous peak reached for a brief period in the mid-1970s. Although this trend is less negative than many recent accounts have suggested, it is nonetheless discouraging. The years leading up to 1975 saw large increases in the enrollment rate of black youth, and those improvements have clearly ended for the time being.

A more negative pattern is apparent in a second enrollment rate, the proportion of black high school *graduates* aged 18–24 enrolled in college. The proportion of black graduates enrolled in college is necessarily higher because high school dropouts largely ineligible for college are removed from the rate's base. The *trend* in the enrollment rate for black high school graduates, however, has been more negative. The rate declined substantially from a short-lived peak of nearly 33 percent in the mid-1970s. Although this enrollment rate has been rising again for several years, it remains approximately 3 1/2 percent-

age points below that earlier peak. This is because the high school graduation rate of black youth has improved substantially since the mid-1970s, and that improvement was not reflected in postsecondary enrollments.

A far more negative view arises when one compares these trends to comparable trends among whites. The enrollment rate of whites has continued to climb during this period—the result of an ongoing increase in the enrollment rate of white females—so the gap between minority and white youth has grown considerably. This holds true regardless of which enrollment rate measure is used.

Despite widespread concern about the particular difficulties faced by black males, no evidence exists that the widening gap in enrollment rates in the 18–24 age group is primarily attributable to black males. The enrollment rate of black males has followed much the same trend as that shown by black females and, for that matter, by white males since the mid-1970s. The enrollment rate for black females has generally been one or two percentage points higher than that of black males during that period. Much of the divergence of enrollment rates between blacks and whites in this age group is attributable to the almost uninterrupted increases in the enrollment rate of white females.

The enrollment rate of Hispanic youth has also been stable since the late 1970s, though it remains lower than during the peak years of the mid-1970s. In the case of Hispanics, trends are similar for both enrollment measures because the high school graduation rate of Hispanics has not changed consistently. Thus, even more for Hispanics than for blacks, interpretation of enrollment trends hinges on whether one sees the brief peak of the mid-1970s as anomalous or as the appropriate basis for comparison. Unfortunately, this remains a matter of debate.

Students in the 18–24 age group, however, constitute a smaller share of the total student population than is often assumed; approximately 40 percent of all college students are older. Enrollment trends have been quite different in older age groups, which may explain some inconsistencies among accounts published to date. In the 25–34 age group, the enrollment rate of blacks has declined in recent years, and that decline has been limited to men. Even this generalization, however, requires a caveat: A similar decline was apparent among white men in this age group. Patterns in this group are less clear than in the 18–24 age group, but even in the older group, the data offer no evidence that the growing disparity between black and white enrollment rates is attributable more to men than to women.

The trends look quite different if the measure is the *number* of students enrolled rather than the enrollment rate, and this too may help reconcile some inconsistencies among recent reports. In the traditional 18–24 age group, the number of both black and white students has changed relatively little since the mid-1970s. The sizes of the relevant populations have changed, however. The fairly stable number of white students translates into a rapid rise in the enrollment rate during this decade because the number of whites aged 18–24 has dropped sharply. Similarly, the small fluctuations that have occurred in the enrollment rate of young blacks mirror an increase and subsequent small decline in the number of blacks in that age group.

Has the total number of black male students of all ages declined since 1976? An assertion that it did has dominated recent press accounts and is a primary reason why attempts to explain enrollment trends have focused on black males. The answer is not clear, for one data source indicates a drop, while another suggests no change. Even the data source that shows a decline in the total number of black male students, however, is consistent with many of the above generalizations. It indicates that the enrollment count of black males dropped 6 percent from 1976 to 1988, while the enrollment count of white males dropped about 2 percent. The larger discrepancy, in that data source as well, is among women: The total enrollment of both black and white females increased, but the growth was considerably smaller among black women (22 percent) than among white women (31 percent).

Viewed more closely, then, the enrollment data do not suggest that black males are the group for which enrollment trends are anomalous—rather, it is white females who are unusual. Overall, enrollment trends clearly tend to be more favorable for whites than for blacks and for females than for males. When one group's enrollments cannot be predicted from those two general patterns, it is white females, rather than black males, who are the exception.

Therefore, to explain the divergence between black and white enrollments solely on the basis of experiences specific to black males, and in particular young black males, is not plausible. The unique experiences of black males can account for at most the smaller share of the divergence between blacks and whites. Moreover, whatever factors have caused the enrollment count of black males to decline affect those over age 25 more than younger males. The unique experiences that affect young blacks, both male and female, may help explain the stagnation of black youth's enrollment rate, but the only lasting

decline in the overall enrollment rates of blacks appeared among older individuals.

Why have the well-documented, intensifying social problems confronting young black males not had greater effects on postsecondary enrollments? Perhaps those problems have largely bypassed to date the small proportion—approximately one-fifth—of black males in the 18–24 age range who have been enrolled in college in recent years. Those problems might also help account for black enrollments' failure to keep pace with increases in blacks' high school graduation rate. One must keep in mind, however, that the decline in the enrollment rate of graduates affected black females as well and ended in the mid-1980s. Another possibility is that the impact on college enrollment of the worsening social problems confronting black males will be delayed and has yet to be felt. Finally, as we explain in the last section and the appendix, the severe social problems confronting black males may have damaged the quality of the data used here, obscuring effects on the college enrollment rate.

The stagnation of the enrollment rate of young blacks, both male and female, is particularly discouraging in the light of a clear and continuing improvement in the relative level of academic preparedness of minority youth. Indeed, data on test scores pose a troubling puzzle: Why have enrollment rates diverged markedly when the test-score gap between minority and white youth has been shrinking, in some cases fairly rapidly? Taken alone, the continuing convergence of test scores should contribute to a further narrowing of the enrollment gap. On the other hand, the gap in test scores remains large, and parity in enrollments is not now attainable without accepting sizable differences in average preparedness between minority and white students. The large remaining gap in test scores may have stood in the way of a continuation of the rapid convergence of enrollment rates that was apparent in the early 1970s. For several reasons, the remaining gap in scores can explain only part of the enrollment trends, but still remains a plausible contributor.

We can rule out several specific factors suggested by analysts as causes of the enrollment trends. Despite recent assertions to the contrary, military enlistments seem to have had at most a minor impact on the enrollment trend for young black males since the mid-1970s. Aspirations and plans of high school graduates have not in general changed in ways that parallel the enrollment trends. Income differences may account for a sizable share of the cross-sectional differences in enrollments between minorities and whites, but the limited

research to date has not shown any impact of income changes on differential enrollment *trends*.

The analyses in this report highlight several important questions that remain unanswered and that are resolvable only with the aid of data more detailed than what we now have. At the same time, the problem's dimensions are clear, and action to confront it can be undertaken on the basis of what is now known. Some of the response must come from institutions of higher education and from the institutions that support them. For example, the national data this report presents suggest that the problem of minority attrition recently confronted by several colleges is substantial nationwide and may be growing among black students, despite an apparent increase in minority youth's academic preparedness. This suggests a pressing need for additional programs, designed in response to the particular circumstances of individual institutions, to support minority students once they begin their studies. Furthermore, the national data suggest that even if the current test-score gap is a constraint, postsecondary institutions in the aggregate could increase minority enrollments somewhat while accepting no more of a differential standard than was in effect a decade and a half ago.

At the same time, the data we present here confirm that the problem of disparities between whites and minorities in enrollments goes far beyond postsecondary institutions. Group differences in academic performance, though shrinking, are still sizable, and this report shows them to be at least as large among college-bound youth as in the student population as a whole. Full equalization of educational opportunity requires more successful efforts than the nation has seen to date to address the inequities and difficulties confronting many minority students years before the time for the transition to higher education.

ACKNOWLEDGMENTS

We would like to acknowledge the assistance of several people outside of RAND. The initiative and support of Alison Bernstein, formerly of the Ford Foundation and currently at Princeton University, was essential. Robert M. Hauser of the University of Wisconsin provided various types of assistance, including his own tabulations of the Current Population Survey (CPS), magnetic transcriptions of CPS data, and detailed documentation of his own work in this area, some of which was funded by the Spencer Foundation and conducted for the National Academy of Sciences/National Research Council Committee on the Status of Black Americans. Mary J. Frase of the U.S. Department of Education provided disks with extensive tabulations of CPS data that had been created for her work with the National Center for Education Statistics. Paul M. Siegel of the Bureau of the Census provided unpublished census data and many other types of assistance in using census data. We gratefully acknowledge the help of these individuals and point out that they are not responsible for any errors of fact or interpretation.

CONTENTS

PREFACE iii

SUMMARY v

ACKNOWLEDGMENTS xi

FIGURES xv

TABLES xvii

Section

I. INTRODUCTION 1
- Aims of This Report 3
- Notes on Terminology 4

II. TRENDS IN POSTSECONDARY ENROLLMENT 8
- Enrollment of the Traditional College-Age Population, Persons Aged 18–24 9
- Enrollment of Older Students 28
- Enrollment of Students of All Ages: The IPEDS Data 34
- Enrollment Counts, by Type of Institution 40
- Students Who Have Left College 43

III. CORRELATES OF TRENDS IN POSTSECONDARY ENROLLMENT 47
- Trends in Minority Youth's Academic Preparedness 47
- Participation in the Military 68
- Income 72
- Aspirations and Plans 73
- GED Degrees 74

IV. CONCLUSIONS AND IMPLICATIONS 76
- Summarizing Enrollment Data 76
- Possible Causes of the Enrollment Trends 82
- Implications for Research and Policy 88

Appendix: DATA SOURCES 93

REFERENCES 99

FIGURES

1.1. College enrollment as a percentage of the civilian population aged 18–24—whites, blacks, and Hispanics 6
2.1. Black enrollment rate by sex, ages 18–24 13
2.2. Non-Hispanic white enrollment rate by sex, ages 18–24 14
2.3. Enrollment rates of black and white males aged 18–24 15
2.4. Enrollment rates of black and white females aged 18–24 15
2.5. Black enrollment counts and population, ages 18–24 ... 17
2.6. Black enrollment counts and population, ages 18–24, logarithmic scaling 17
2.7. White enrollment counts and population, ages 18–24, including Hispanics 18
2.8. College enrollment as a percentage of high school graduates—whites, blacks, and Hispanics aged 18–24 20
2.9. Status dropout rates—whites, blacks, and Hispanics aged 18–24 23
2.10. Black status dropout rates by sex, ages 18–24 24
2.11. Enrollment of black and white recent high school graduates 26
2.12. Black male college enrollment rates for three age groups 31
2.13. White male college enrollment rates for three age groups 31
2.14. Percentage change in black college enrollment counts, by sex, all ages and levels 37
2.15. Percentage change in white college enrollment counts, by sex, all ages and levels 40
2.16. College enrolled or graduated as a percentage of high school graduates aged 18–24—whites, blacks, and Hispanics 44
2.17. College graduates, not enrolled, as a percentage of high school graduates aged 18–24—whites, blacks, and Hispanics 45

2.18. Percentage of high school graduates aged 18–24 who completed at least one year of college but did not graduate or were not enrolled—whites, blacks, and Hispanics 46
3.1. Mathematics SAT: Change in minority-white mean differences, 1975–1987 school years 58
3.2. Mathematics ACT: Change in minority-white mean differences, 1976–1987 school years 59
3.3. Actual and potential college enrollment rates for blacks aged 18–24 71

TABLES

2.1. Percentage of college students in each population group enrolled in each type of postsecondary school 41
3.1. Trends in average high school credits for whites, blacks, and Hispanics, by subject area 51
3.2. Percentage of high school graduates earning at least a specified number of credits in mathematics, by population group 52
3.3. Percentage of high school graduates earning at least a specified number of credits in science, by population group 53
3.4. Percentage of high school graduates earning at least a specified number of credits in the new basics, by population group 54
3.5. Percentage of 17-year-old students scoring in the top quartile in mathematics and science, by population group 61
3.6. Test scores of black and white students: Overall, and students expecting to attend four-year colleges 62
3.7. Proportion of 11th-grade students in college-bound categories, by population group, 1986 NAEP 64
3.8. Test scores of black and white students: Overall, and students expecting to attend two-year colleges 65
3.9. Percentage of 11th-grade students above specified achievement percentiles in mathematics and science, by population group, in the 1986 NAEP 66
3.10. Test scores of Hispanic and white students: Overall, and students expecting to attend college 68

I. INTRODUCTION

On February 5, 1989, *The New York Times* carried a front-page article with the headline, "Ranks of Black Men Shrink on U.S. Campuses." It began, "A dramatic decline in the number of black men in college is raising concern that a gap in social status is opening between black men and black women." The accompanying graph showed a slow but steady decline in the number of black male students—a drop that totaled some 7 percent between 1976 and 1986. The trend among black women was markedly different: a 14 percent increase over the same period, with most of the increase occurring by 1980.

The *Times* article was a portent. The issue of changing minority participation in higher education—a matter of controversy in the educational research and policy community for several years—has increasingly become a focus of public debate as well. In recent months, concern about minority enrollment has repeatedly received prominence in many newspaper articles and op-ed columns. In addition to discussing trends in overall enrollments, recent press accounts have focused on differences in the types of postsecondary education chosen by minority and white youth, black males' excessive attrition from college (see, for example, Goldstein, 1990), and the impact of military enlistments on black males' college enrollment (Cooper, 1990).

Two persistent themes dominate recent discussion of minority enrollment trends. One is the view that enrollment trends are particularly negative for black males. The second, a seemingly logical corollary of the first, is that the explanation lies largely with the particular experiences of black males—especially young black males—in recent years. Thus, for example, on December 28, 1989, *The Washington Post* embedded a discussion of trends in the postsecondary enrollment of black males in a front-page article entitled "To Be Young, Male, and Black: As Group's Problems Worsen, Fatalistic Attitude Is Widespread" (McAllister, 1989). The *Post*'s article was broad in scope and presented a disturbing array of indicators of the worsening plight of young black males nationwide, including statistics pertaining to income, murder rates, family composition, health, and unemployment, as well as enrollment in higher education. Similarly, in a recent column, the nationally syndicated columnist Richard Cohen presented

the enrollment decline reported by the *Times* as one of many indications of the serious problems confronting black males (Cohen, 1990).

In the research and policy community, however, discussion of trends in minority enrollment in postsecondary education and about possible causes of those changes has been characterized by a thorough lack of consensus. Although little argument exists about postsecondary enrollment trends before the mid-1970s—the increase in minority enrollment then was clear—a great deal of controversy has arisen about trends over the past decade or decade and a half. Some reports, such as that appearing in the *Times*, paint a bleak picture of minority enrollment trends, but others have argued that the trends have not been negative. This fundamental disagreement is even more startling when one realizes that most observers rely primarily on one or both of the same two sources of data: the October Current Population Survey (CPS, an annual household survey conducted by the Bureau of the Census) and a survey of postsecondary institutions conducted by the United States Department of Education.

One of the most prominent negative portrayals of minority enrollment trends is a recent issue of the annual *Minorities in Higher Education* reports (American Council on Education [ACE], 1988). That report was the source of the information reported in the *Times*. Although the ACE report includes an array of indicators of minority youth's educational progress, some of which are quite positive, its presentation of trends in minority postsecondary enrollments is clearly negative. It points out, for example, that the enrollment of black men "suffered the largest decline of all racial and ethnic groups." A recent joint publication of the Education Commission of the States and the State Higher Education Executive Officers (Mingle, 1987) also reached fundamentally negative conclusions. Mingle noted that college enrollment rates of black and Hispanic college-age youth declined after a peak in the mid-1970s. He further noted that in terms of total enrollment, black enrollments since 1976 trailed all others, and the black share of total enrollment dropped accordingly.

In contrast, several other observers have concluded that the past decade's trends show little evidence of a problem. Zemsky (1988) looked at the proportion of persons aged 19–21 who had some college attendance; he found no substantial change for black males and a steady increase for black females. Pelavin and Kane (1988) note some decline in black enrollment rates since the peak of the mid-1970s, but they maintain that rates have been stable since 1980 and that the peak enrollment of the mid-1970s, which was very short-lived, was in

some respects anomalous. Pelavin and Kane's analysis also contradicts the widespread notion that the trends reflect the particular circumstances of black males, for it points to similar enrollment trends for black males and black females.

AIMS OF THIS REPORT

How can we reconcile these seemingly contradictory positions? Are some conclusions simply wrong, or do the differences among them simply represent different aspects of enrollment trends or different ways of looking at the same data?

This report's first purpose is to answer these questions and describe trends in minority enrollment. Doing so requires a detailed examination of the commonly used data pertaining to postsecondary enrollments. Postsecondary enrollment is a complex phenomenon, and none of the available measures is fully adequate to characterize it. The various measures capture different aspects of the phenomenon and have different weaknesses. For example, although many students enter college immediately after graduating from high school and progress through college rapidly, many others delay entry into college or progress more slowly once they enter. Consequently, nearly 40 percent of all college students—black, white, or Hispanic—are currently above age 24. No single measure can adequately characterize trends across so wide an age range, particularly because trends among older students need not be—and, in recent years, have not been—similar to trends among younger students.

Moreover, many available measures have substantial weaknesses even if used only to measure a narrower aspect of postsecondary enrollment. For example, two of the most common measures assess the proportion of individuals (or high school graduates) aged 18–24 who are enrolled in college. If we use these measures, individuals who have already graduated from college, if they do not remain enrolled for postgraduate education, are counted as if they had never enrolled.

For these reasons, obtaining a clear view of trends in postsecondary enrollments requires not only that individual measures undergo careful examination, but also that a variety of different measures be arrayed and compared. By using multiple measures, we can piece together a more complete view than any single measure can offer. In addition, by comparing different measures, we can test the consistency of the view they provide of trends in the participation of minority students.

As the following section shows, quite a few consistent patterns emerge from the array of disparate enrollment measures. In some cases, different measures, when modified appropriately, point to similar conclusions. In other instances, disparities among measures appear to represent real differences in enrollment trends—for example, differences in trends between younger and older black males.

A second aim of this report is to assess possible causes of trends in the enrollment of minority youth. For example, do the data confirm that black males in general, or young black males in particular, have shown uniquely negative enrollment trends, and that their particular experiences hold the key to disparities between population groups in enrollment trends? In addition, what can be said about trends in other factors—such as the academic preparedness of minority youth, and the enlistment of black males in the military—that have been suggested as possible influences on minority enrollments?

For several reasons, this report offers considerably more analysis of the enrollment of blacks than of Hispanics, although in many places we include parallel analysis of Hispanics. Blacks—especially black males—have been the primary focus of the recent debate about minority enrollments. Consequently, more questions have been raised, and claims made, about blacks' enrollment. In addition, considerably more research exists concerning the enrollment of blacks than the enrollment of Hispanics. Finally, data about Hispanics are sparser and less adequate than data about blacks. For example, the CPS included no separate data for Hispanics before the early 1970s, and the current sample of Hispanics is too small to permit replicating for Hispanics some of the more detailed analyses we present below for blacks. The lesser emphasis on Hispanics in this report, however, does not imply that the problems faced by Hispanics in their progression through the educational system are less serious. On the contrary, in terms of some measures we present below, such as the high school dropout rate and the college enrollment rate for all individuals aged 18–24, the problems faced by Hispanics are even more severe than those confronting blacks.

NOTES ON TERMINOLOGY

Because the classification of individuals into groups is ambiguous, and because the terminology this report uses to classify groups is in some respects unconventional, a brief explanation of nomenclature is in order.

The groups this report discusses—blacks, Hispanics, and non-Hispanic whites—are conventional classifications, and their use here generally coincides with their use in the original data. Thus, in most instances, the statistics we report can be replicated by using the original classifications of individuals in the data cited, and where similar published tabulations of those data are available, the numbers this report uses will generally coincide with them.

One important exception is the use of the "white" classification in discussing data from the annual CPS. Because the Bureau of the Census treats race and ethnicity as separate variables, Hispanics are tabulated as a separate ethnic category but are also tabulated as members of a racial group. Consequently, Hispanics are counted twice in many census tabulations. For example, in many census tabulations that provide enrollment statistics for three population groups—whites, blacks, and Hispanics—Hispanics are counted both in the Hispanic category and in either the white or the black category. As a later section explains, nearly all Hispanics in the CPS data classify themselves as white.

To solve this problem, we have removed the appropriate proportion of counts of Hispanics from the census "white" category to obtain counts of non-Hispanic whites for many statistics reported in this report.[1] Thus, for example, in Fig. 1.1, enrollment rates for non-Hispanic whites appear for all years for which counts of Hispanics are available; unadjusted counts of the census "white" category appear only for earlier years. The adjusted, non-Hispanic white category is more closely analogous to the "white" category found in other data sources we consider here. Therefore, for simplicity, we generally use the term *white* in the text to denote the adjusted, non-Hispanic white classification (exceptions are noted).

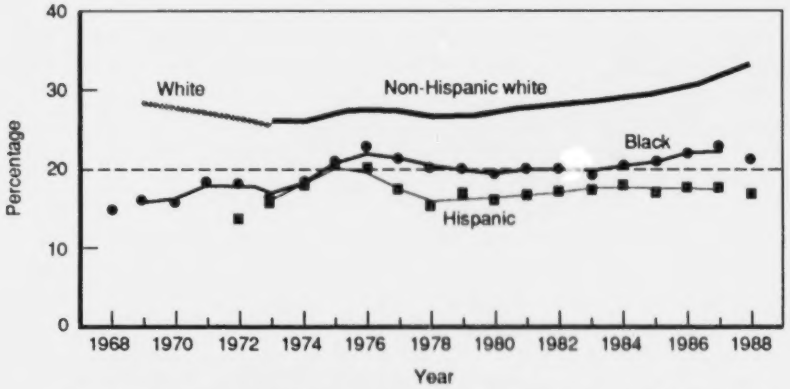
The other departure from conventional usage arises in choosing a terminology to label these conventional classifications. This is not as straightforward as many believe. In census tabulations of CPS data (see, for example, Bureau of the Census, 1988), and in common parlance, certain distinctions (such as black-white differences) are termed "racial," while others are not. We do not follow that convention in this report, for several reasons. First, the classification of individuals in the data we report here is not based on unambiguous racial criteria. Individuals are classified (by themselves, by other household members, or by others, depending on the data source)

[1]The number of black Hispanics in the CPS is too small to warrant adjustment of the published numbers.

based on ambiguous social conventions that have large racial and cultural components but that do not always line up neatly with clear racial or cultural categories. As one anthropologist noted,

> Comparative studies of these popular racial typologies show them to vary from place to place; studies of popular racial classifications also show them to vary from one historical period to another. In no instance are these classifications referable to competent genetic studies (Marshall, 1968, p. 151).

Marshall points out that in the case of the black-white distinction, one way in which popular classifications differ from true racial ones is that in the United States (but not in all other countries), individuals with mixed-race ancestry are often classified as black regardless of whether they have more white or more black ancestry. Other instances also exist in which census "racial" categories are arguable, although they are less germane to this report. One example is the classification of Hispanics with American Indian ancestry. Almost all such individuals are classified as white in the CPS, regardless of the proportion of American Indian (racially, Asian) ancestry they have.



SOURCES: Current Population Survey; Bureau of the Census, *School Enrollment: Social and Economic Characteristics of Students*, Series P-20, various years.

NOTE: Lines are three-year weighted moving averages.

Fig. 1.1—College enrollment as a percentage of the civilian population aged 18–24—whites, blacks, and Hispanics

Classification of South Asians is also wrong with respect to actual biological classifications in some instances, for the census "other Asian and Pacific Islander" racial category includes some people who are biologically Caucasian.

Ethnic or cultural classifications are also problematic. Perhaps most important here is that the group labeled "Hispanic" in many databases is actually made up of several very distinct cultural groups, including Cuban-Americans, Mexican-Americans, and Puerto Ricans. Not only are these groups culturally distinct, they also show substantially different patterns of educational achievement and attainment (Arias, 1986; Koretz, 1986). Such groups ideally would be distinguished in analyses of the relationship between ethnicity and educational performance, but unfortunately many data sources lack sufficient detail or adequate sample sizes to do so.

These ambiguities are important, because terms such as *racial*—and, to a lesser degree, *ethnic*—have many other implications in the minds of some readers, none of which are intended here. For these reasons, this report does not use *racial* to denote black-white differences and avoids using *ethnic* in most instances as well. Unfortunately, common parlance has no good substitute. Therefore, we refer to these conventional social groups as "population groups" throughout the report and to differences among them as "population-group differences" or "group differences."

II. TRENDS IN POSTSECONDARY ENROLLMENT

In this section, we array various measures of participation in postsecondary education to ascertain whether they provide a consistent view of trends in the postsecondary enrollment of minority students.

Some discrepancies (both real and apparent) among recent reports on this topic stem from differences in the measures used or in the basic questions addressed. Thus, before examining the data, we must note some dimensions along which recent discussions have varied.

One fundamental distinction is between enrollment or participation *counts* and enrollment *rates*. *Counts* are simple tabulations of the number of people in a group who are enrolled in postsecondary institutions. *Enrollment rates* indicate the proportion of a given group who are enrolled—for example, the proportion of Hispanic high school graduates aged 18–24. Typically, recent reports have used the Integrated Postsecondary Education Data System (IPEDS) from the U.S. Department of Education as the source of enrollment counts, while rates are generally based on the CPS of the Bureau of the Census. Although IPEDS cannot be used to estimate enrollment rates, the CPS can be used to estimate counts as well as rates, and we discuss below the consistency between CPS and IPEDS estimates of counts.

Regardless of whether the focus is on enrollment counts or rates, one must decide which age groups are to be included. Most recent reports (for example, American Council on Education, 1988) have focused on two groups: individuals aged 18–24, who might be considered the traditional college-age population, and students of all ages. In many cases, age differences have been confounded with the difference between rates and counts, for the two most commonly cited measures are enrollment counts for all ages and enrollment rates for the traditional college-age population. Breaking down this confusion and examining rates and counts separately for different age groups holds the key to reconciling some apparently conflicting patterns recent reports have presented.

When the focus is on enrollment rates, one must decide which group should be the basis for calculating the rate. One option is to calculate the proportion of the entire age group that is enrolled in college—say, the proportion of all black males aged 18–24. An alternative is to restrict the group for which rates are calculated to high

school graduates in a given age group. Neither alternative is clearly correct; each imparts different information. The distinction between these two alternatives also proves essential for finding consistent answers to questions about minority enrollments.

In addition to enrollment statistics, this section also presents several additional measures of individuals' progress through the educational system. We present these both to supplement and to help interpret the primary enrollment estimates. For example, in order to interpret the discrepancy between enrollment rates for all individuals and those for high school graduates, one must examine trends in the high school dropout rate of minority students.

ENROLLMENT OF THE TRADITIONAL COLLEGE-AGE POPULATION, PERSONS AGED 18–24

Nearly all the enrollment *rates* that have been salient in the recent debate about postsecondary enrollment of minorities pertain to individuals in the 18–24 age range (see, for example, American Council of Education, 1988; Mingle, 1987). These estimates are based on the annual October CPS.[1]

The use of this broad age range has two advantages: it makes the measure appropriately sensitive to delayed enrollments and provides annual estimates with a great deal more statistical reliability than would be possible for measures focusing on a single year of age. It also has several disadvantages, however. Because this age range groups together seven different birth cohorts, measures based on it tend to obscure changes in the behavior or experience of individual graduating cohorts and respond only slowly to longer-term trends. In addition, this age range is so broad that it encompasses an appreciable number of people who either are still in high school or have already graduated from college. In the commonly used enrollment rates, these people are inappropriately counted (in the denominator) as if they had left high school but never enrolled in college. These measures also fail to distinguish individuals who have never enrolled in postsecondary education from those who began college but dropped out before graduating (Hauser, 1986). Despite these weaknesses,

[1]Some measures, based on Bureau of Labor Statistics tabulations of the CPS, include ages 16 and 17, and some CPS tabulations published by the Bureau of the Census include ages 14 and 15 as well. So few college students are below age 18, however, that these differences have no significant impact on enrollment estimates.

however, these measures are important to consider because they yield considerable information and remain a key element in public debate.

The recent debate raises several basic questions about this traditional college-age group:

- Has the disparity in enrollment rates between white and minority adults in this age group grown in recent years?
- Has the enrollment rate of minorities—in particular, blacks—fallen?
- Have trends in enrollment rates been particularly negative for black males in this age group?

The answer to the first question is unambiguous: The disparity in enrollment rates between white and minority individuals in this age group has grown substantially since the mid-1970s. Much of this change, however, stems from an increase in the enrollment rate of whites.

The answer to the second question is less clear—it depends on which enrollment rate one uses, how one interprets some relatively small fluctuations in the enrollment rates over the past 15 years, and how one interprets a brief peak in minority enrollments in the mid-1970s. At best, one would conclude that the enrollment rates of both Hispanics and blacks have been largely stagnant for nearly a decade and a half. At worst, one would conclude that some deterioration has occurred, albeit not a dramatic amount.

Finally, *in this age group,* no evidence exists that enrollment rate trends have been particularly unfavorable for black men. For more than a decade, the enrollment rates of black males and females in this age group have shown similar trends.

Enrollment Rates for All Individuals Aged 18–24

The simplest enrollment rate for the 18–24 age group is the proportion of all individuals, whether high school graduates or not, who are enrolled in college. For simplicity, we could call this the "overall" enrollment rate. In CPS tabulations (the source of these estimates), all students enrolled in a regular, degree-granting postsecondary program are counted as enrolled, regardless of their level of enrollment (for example, undergraduate versus graduate; see appendix).

Males and Females Together. By this simple measure, the enrollment rate of white youth fluctuated during the 1970s but has been

rising steadily throughout this decade (see Fig. 1.1).[2] This increase has been a bit greater than is commonly recognized because many discussions of enrollment trends (for example, American Council on Education, 1988) have used the census "white" category, which includes almost all Hispanics.[3] Because Hispanics are a rapidly growing group and have a low average level of educational attainment, grouping them with non-Hispanic whites gives the combined group a somewhat slower rate of increase in postsecondary enrollments.

The enrollment trends of black and Hispanic youth, however, fail to mirror the recent upturn evident among whites. Estimated black enrollment rose from the late 1960s until 1976 or so, declined modestly thereafter, and then returned in the past few years approximately to the level of the peak year of 1976. The decline from 1976 to 1980 and the subsequent rise from 1983 to 1987 were both small—between two and three percentage points—but still statistically significant.[4] Thus, the estimated enrollment rate of black youth has fluctuated only moderately since the mid-1970s, ranging, in round numbers, from 20 to 22 percent.[5] Data pertaining to Hispanics were unavailable until

[2]Because of the small sample of college students in the CPS, annual estimates of enrollment rates for blacks and Hispanics are subject to substantial sampling error that can produce sizable but meaningless year-to-year fluctuations. Accordingly, in Fig. 1.1 and others, particularly error-prone measures are represented in two ways. The lines are three-year weighted moving averages, which smooth out much of the annual sampling error. The symbols unconnected by lines represent annual estimates that have not been averaged. Because 1989 data are not yet available, the latest moving average is for 1987. In the case of relatively stable estimates, such as the enrollment rate for whites, the annual estimate for 1988 is graphed with the moving averages for earlier years. The conclusions we discuss in the text generally reflect the moving averages.

[3]In the case of the CPS data used here, 97 percent of all Hispanics identify themselves as white. The proportion identifying themselves as white in decennial census data is much lower because of a different range of response choices (Jorge Del Pinal, U.S. Bureau of the Census, personal communication, July 24, 1989). Thus, in using CPS data, simply subtracting 97 percent of estimated counts of Hispanics from the published estimates of whites yields reasonably accurate estimates of the numbers of non-Hispanic whites. That approach is reflected in all CPS-based estimates for non-Hispanic whites in this report. As we noted in the introduction, we use the term *white* in this report to refer to non-Hispanic whites, except as otherwise noted.

[4]For the decline, $t = 2.0$; for the upturn, $t = 2.3$.

[5]Note that the enrollment estimates for blacks have been particularly unstable during the latest two years of available data; 1987 continued an upward trend, while 1988 was quite a bit lower. We will show below that this reflects an even greater fluctuation in the estimated enrollment rate of black males. Until additional data are available, we cannot know whether the change from 1987 to 1988 is an artifact of sampling, an indication of a true but anomalously low rate, or the beginning of a longer-lasting downward shift in enrollment rates. (A sizable share of each year's CPS sample is resampled in the following year, so the 1990 data will be the first free of any

the 1970s, but the trend among Hispanic youth has been fairly similar to that of black youth since the late 1970s: some fluctuation, but no pronounced change over time. The estimated enrollment rate of Hispanics, however, remains a few percentage points below its peak level of the mid-1970s and has been lower than that of black youth for more than a decade.

Interpretation of these trends—and, even more, trends described below in the enrollment rate of high school graduates—hinges in part on the short-lived peak in enrollment rates in the mid-1970s. No explanation of that brief peak has gained universal acceptance. If one treats the rates of that period as an unexplained anomaly, the minority enrollment trends of the past two decades appear somewhat more favorable than if one uses the peak years of the mid-1970s as the basis of comparisons.

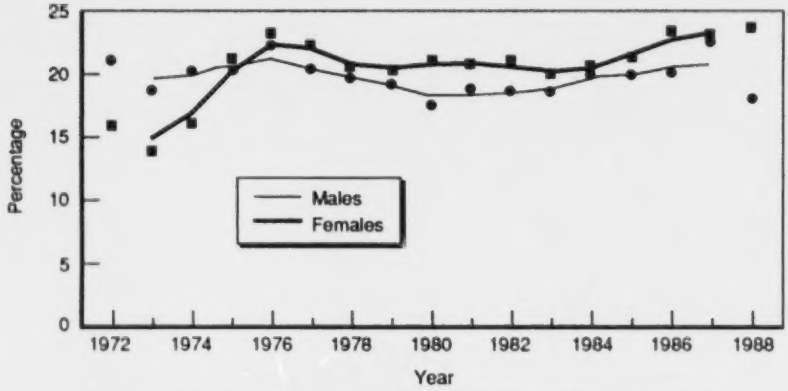
The growth in white enrollments, coupled with the stagnation of minority enrollments, has produced a sizable gap in enrollment rates that has widened considerably since the mid-1970s. Currently, nearly a third of all whites in the 18–24 age group are enrolled in college. In contrast, the proportion of blacks in college is only a bit over one-fifth. The estimated enrollment rate of Hispanic youth in 1988 was lower still, averaging about 17 percent throughout the 1980s. The gap between blacks and whites grew from approximately 6 percentage points in 1976 to 9.5 percentage points in 1987. Moreover, this divergence was not entirely the result of the short-lived peak in minority enrollment rates in the mid-1970s. The black-white gap grew by nearly 3 percentage points between 1979 and 1987.[6]

Sex Differences in Enrollment Rates.[7] Despite much recent discussion suggesting that enrollment trends are substantially more negative for black males than black females, the overall enrollment rate of youth *in the 18–24 age group* has shown fairly similar trends for black males and females over the past decade (see Fig. 2.1). The years before 1976 show a clear change: The postsecondary enrollment rate among black females, which had been considerably below that of black males, quickly rose to a level above it, and since then the enrollment rate for young black females has exceeded that of young black males, generally by one or two percentage points. Between

sampling errors specific to the 1988 sample.) Accordingly, the interpretation we present here follows the trends through the 1987 moving average but not beyond.

[6]The change in the black-white gap was statistically significant for both periods (1976–1987, t = 3.8; 1979–1987, t = 2.7).

[7]Because of small sample sizes, we do not analyze these trends separately for Hispanic males and females.



SOURCES: Current Population Survey; Bureau of the Census, *School Enrollment: Social and Economic Characteristics of Students*, Series P-20, various years.

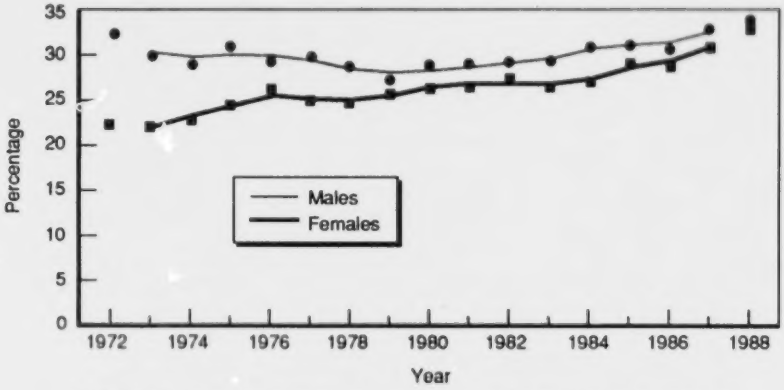
NOTE: Lines are three-year moving weighted averages.

Fig. 2.1—Black enrollment rate by sex, ages 18–24

1976 and 1986, however, the estimated enrollment rates of black males and females followed reasonably similar trends. At least until the past few years, no indication of a substantial widening of the gap between black males and females existed. In 1987, the difference between black males and females remained within the two percentage-point range characteristic of the past decade.[8]

In contrast, a sex difference in overall enrollment rate trends was apparent among whites (see Fig. 2.2). As in the case of blacks, the enrollment rate of white females rose relative to that of males in the early 1970s. Among whites, however, those relative gains appear to have continued, albeit erratically, over the subsequent decade, and

[8]In 1988, the *estimated* enrollment rate of black males dropped sharply, while the estimated rate for black females continued to rise (Fig. 2.1). However, whether the abrupt change for males was merely a sampling fluctuation, a true but idiosyncratic decline, or the beginning of a longer-term downturn in the enrollment rate remains unclear. Between 1984 and 1987, the estimated enrollment rate for black males ranged from 20 to 23 percent. In 1988, however, the estimate dropped to 18 percent, essentially matching the lowest rate (in 1980) in the 17 years of data considered here. This drop in 1988 is even more puzzling because the 1987 estimate for black males was the highest on record and virtually equalled the rate among black females. As we noted earlier, interpreting the 1988 estimate will not be possible until additional data become available.



SOURCES: Current Population Survey; Bureau of the Census, *School Enrollment: Social and Economic Characteristics of Students*, Series P-20, various years.

NOTE: Lines are weighted three-year moving averages.

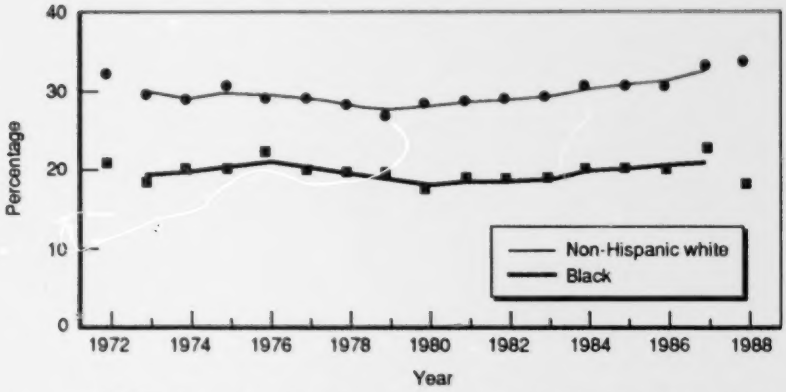
Fig. 2.2—Non-Hispanic white enrollment rate by sex, ages 18–24

the estimated enrollment rate of white females finally approached parity with the rate for white males in 1988.[9]

When we compare these gender-specific trends, we find that despite the widespread concern about trends among black males, the recent divergence in enrollment rates between blacks and whites in the 18–24 age range *is attributable more to females than to males.* Among males, the black-white difference has changed little over the past decade and a half; it grew by only 2 percentage points between 1976 (when the overall gap reached its minimum) and 1987 (see Fig. 2.3). This divergence is not only substantively small, it is also too small relative to the margin of error in the CPS to be statistically significant.[10] The pattern among females is markedly different (see Fig. 2.4). Until 1976, the white-black difference shrank rapidly because the enrollment rate grew even more rapidly among black females than among white females. Over the past decade, the trend reversed, and black women fell further and further behind white women—a reflection of a steady increase in the enrollment rate of white women

[9]The convergence of enrollment rates of white males and females between 1976 and 1987 was statistically significant ($t = 2.2$).

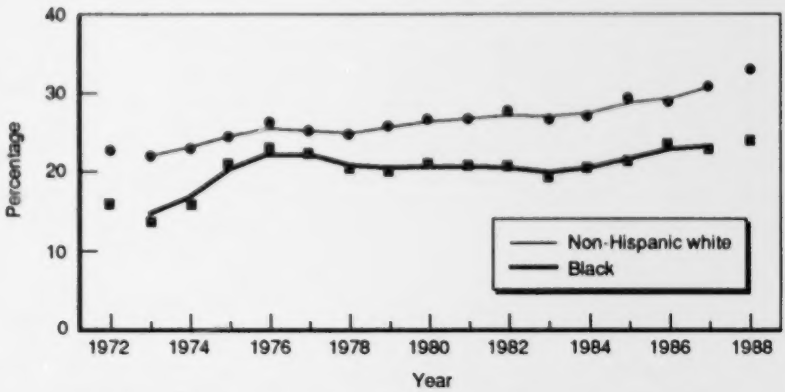
[10]Comparing the gap between weighted averages in 1976 to the gap between the weighted averages in 1987, $t = 1.1$.



SOURCES: Current Population Survey; Bureau of the Census, *School Enrollment: Social and Economic Characteristics of Students*, Series P-20, various years.

NOTE: Lines are weighted three-year moving averages.

Fig. 2.3—Enrollment rates of black and white males aged 18–24



SOURCES: Current Population Survey; Bureau of the Census, *School Enrollment: Social and Economic Characteristics of Students*, Series P-20, various years.

NOTE: Lines are weighted three-year moving averages.

Fig. 2.4—Enrollment rates of black and white females aged 18–24

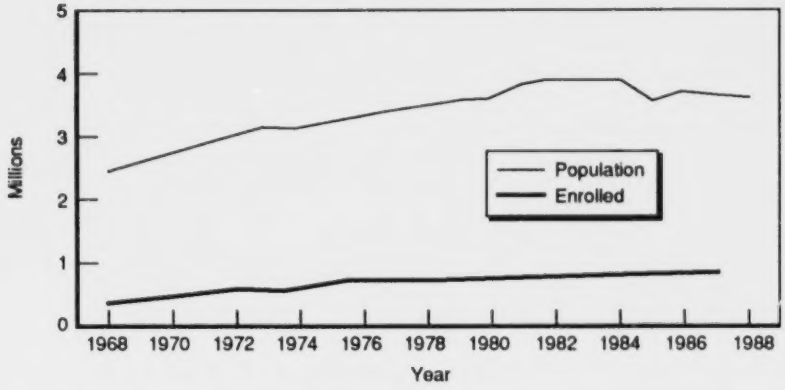
that was not consistently mirrored by black women. In 1976, the gap between black and white women was about 2½ percentage points; in 1987, it had grown to approximately 6 percentage points.[11] Thus, although the black-white disparity in enrollments is larger for males than for females, it has grown substantially more in recent years among females, and the growing enrollment rate gap between blacks and whites is attributable more to women than to men.

Enrollment Counts for Persons Aged 18–24

Enrollment trends for this age group appear quite different—and more positive for blacks and Hispanics—if we focus on the *number* of students enrolled rather than enrollment rates. Between 1968 and 1976, black enrollment *counts* in the traditional college-age population roughly doubled, from about 350,000 to approximately 720,000 (see Fig. 2.5). An increase of nearly 40 percent in the black population in that age group, however, substantially attenuated the increase in the enrollment *rate*. This can be seen more clearly in Fig. 2.6—there, the population and enrollment counts are placed on a logarithmic scale, so that parallel slopes indicate proportionately similar rates of change. That figure shows that until 1976, the growth in the number of blacks enrolled was proportionately more rapid than the population growth. In contrast, from 1976 to 1987, the number of black college students aged 18–24 was quite stable. Much of the fluctuation in the enrollment *rate* of blacks during that period stemmed from changes in population size that were not mirrored in enrollments. Thus, the small downturn in the estimated enrollment rate after 1976 reflected in part the continued growth of the population of blacks aged 18–24, and the subsequent rise of the estimated enrollment rate during this decade stems in part from the subsequent shrinking of the population.

The contrast between enrollment counts and rates is even more striking in the case of Hispanic youth. From 1973 to 1988, the number of Hispanics aged 18–24 enrolled in postsecondary education doubled, from an estimated 216,000 to 450,000. With the exception of a short period in the mid-1970s, however, this *entire* increase in enrollments was offset by population growth, so the enrollment rate did not increase at all over the longer term.

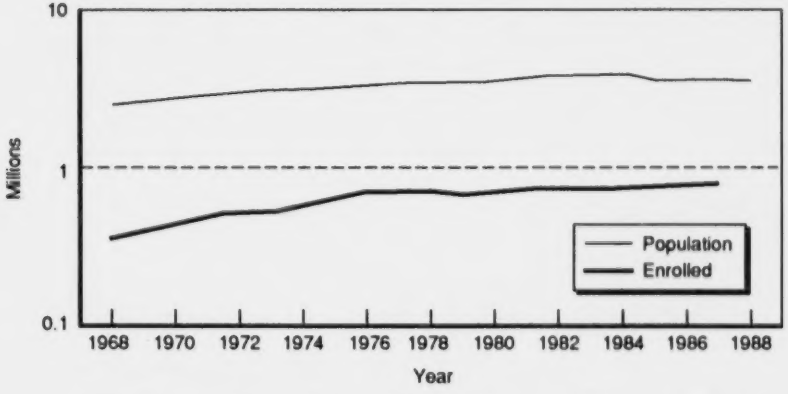
[11] This change is statistically significant ($t = 2.0$).



SOURCES: Current Population Survey; Bureau of the Census, *School Enrollment: Social and Economic Characteristics of Students*, Series P-20, various years.

NOTE: Enrollment is weighted three-year moving average.

Fig. 2.5—Black enrollment counts and population, ages 18–24



SOURCES: Current Population Survey; Bureau of the Census, *School Enrollment: Social and Economic Characteristics of Students*, Series P-20, various years.

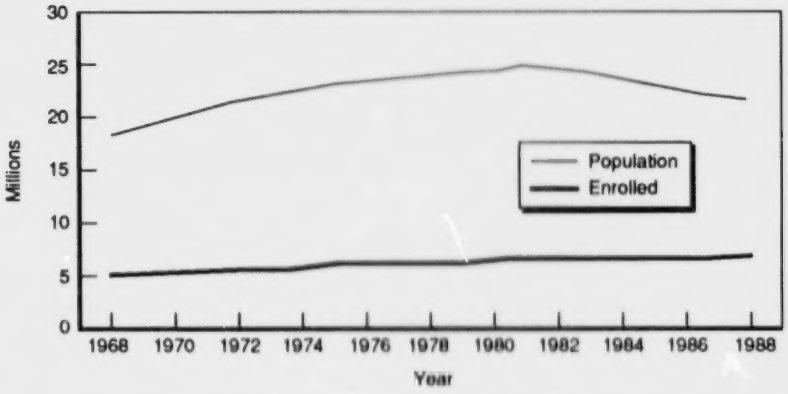
NOTE: Enrollment is weighted three-year moving average.

Fig. 2.6—Black enrollment counts and population, ages 18–24, logarithmic scaling

Enrollment trends among whites have followed a somewhat different course. The number of white youths enrolled aged 18–24 climbed slowly until the late 1970s and has been relatively constant since then (see Fig. 2.7). Because the white population in this age group has fallen considerably since 1981, however, these stable enrollment counts translate into the steadily rising enrollment rates discussed above.

Enrollment Rates of High School Graduates Aged 18–24

An alternative, commonly discussed view of enrollment trends considers the proportion of high school graduates who are enrolled in college, rather than the proportion of the entire age group in question. The rationale for preferring enrollment statistics based on the number of high school graduates is that high school dropouts are ineligible for admission to most colleges, and changes in the high school dropout rate indicate changes in the pool of students eligible to attend. Thus, excluding high school dropouts from consideration and calculating the



SOURCES: Current Population Survey; Bureau of the Census, *School Enrollment: Social and Economic Characteristics of Students*, Series P-20, various years.

NOTE: Enrollment is three-year weighted moving average.

Fig. 2.7—White enrollment counts and population, ages 18–24, including Hispanics

enrollment rate only for high school graduates comes closer to answering the question, Of those who might attend college, how many do?

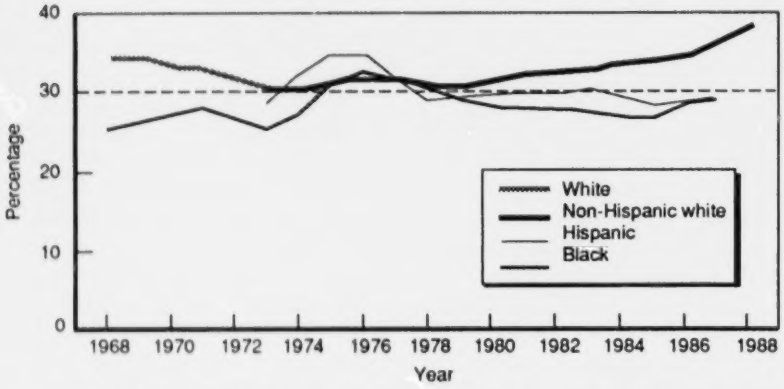
Both enrollment rates are important for comparing the educational success of population groups. The enrollment rate for the age group as a whole is more germane to the question, What proportion of young adults in each group make it as far as enrollment in college? The enrollment rate for high school graduates would overstate the success of minorities in this respect, because it is inflated by their higher high school dropout rates. On the other hand, the enrollment rate for the age group as a whole would overstate the difficulties faced by minority youth in the transition to college, by including in the base large numbers of high school dropouts who are ineligible for attendance at most colleges.

The enrollment rate for high school graduates, however, is also not an ideal measure for appraising the transition to college. In some discussions of the postsecondary enrollment of minority youth, high school graduates have been referred to as those "eligible" for college. Although most high school graduates are eligible for attendance in some institutions that are counted as college-level in the data considered here, many are ineligible, because of weak academic performance or other reasons, for attendance at many or most colleges. As the following section shows, large population-group differences remain in academic performance, even among ostensibly college-bound high school students. Thus, basing enrollment rates only on high school graduates does not ensure that the individuals considered in each population group are equally "eligible."

The proportion of black high school graduates aged 18–24 enrolled in college is lower now than in the mid-1970s, both in absolute terms and, especially, in comparison to whites (see Fig. 2.8).[12] When enrollment rates are calculated for high school graduates, the upturn in the rate among black high school graduates over the past few years has been insufficient to overcome the decline that occurred between 1976 and 1984, and the enrollment rate over the past three years has averaged 3.4 percentage points below that of the peak years of 1975–

[12] In this figure, as in Fig. 1.1, the trend for the census white category is graphed until 1973; the trend for non-Hispanic whites, from 1973 on. In this instance, however, the two trends are so similar that they appear to be a single line.

Both the drop in the enrollment rate among blacks ($t = 2.2$) and the growth of the black-white gap ($t = 4.5$) are statistically significant.



SOURCES: Current Population Survey; Bureau of the Census, *School Enrollment: Social and Economic Characteristics of Students*, Series P-20, various years.

NOTE: Lines are weighted three-year moving averages.

Fig. 2.8—College enrollment as a percentage of high school graduates—whites, blacks, and Hispanics aged 18–24

1977.[13] Although the enrollment rate of black graduates is still lower than it was in the mid-1970s, note that the decline stopped around 1984, and the fluctuations in the enrollment rate since then have been relatively small.

On the other hand, note too that the current enrollment rates represent a significant decline only by comparison to the short-lived peak in minority enrollment rates in the mid-1970s. As we noted earlier, no explanation for this peak has gained consistent acceptance, and some observers interpret it as a short-term anomaly. If one excludes the peak years of the 1970s from consideration, the trend in the enrollment rate of black high school graduates since the early 1970s could as well be characterized as a period of stagnation punctuated by relatively small fluctuations in both directions.

In comparison to the trend among whites, however, the enrollment trend of black high school graduates is unambiguously discouraging. During the brief enrollment peak in the mid-1970s, black high school graduates of this age range had college enrollment rates very similar to those of whites (Fig. 2.8); approximately a third of the high school graduates in each group were enrolled in college. The deterioration of

[13]The increase in the estimated enrollment rate for black high school graduates from 1984 to 1987 was too small to be statistically significant (t = 1.6).

the enrollment rate among black graduates, coupled with an improvement of the rate among white graduates, has led to the reemergence of a substantial gap in enrollment rates between blacks and whites that has ranged between six and ten percentage points for more than half a decade. In 1987, 37 percent of white high school graduates, but only 29 percent of black graduates, were enrolled. Even if one excludes the perhaps anomalous mid-1970s from consideration, the growth of the black-white gap is clear.

The enrollment rate for high school graduates, like that for all individuals, shows no evidence of a substantial difference in trends between black males and females over the past decade. As in the case of the overall enrollment rate, the enrollment of black female high school graduates rose substantially, relative to that of black males, until approximately 1976. Since then, enrollment rates of black male and female graduates have followed fairly similar trends.[14]

The enrollment rate for Hispanics in the 18–24 age group also shows a decline over the past decade and a half. In the mid-1970s, the estimated enrollment rate for Hispanics was higher than that of either blacks or whites. By the mid-1980s, it had fallen to the point where it was essentially identical to the rate for black high school graduates.

Comparing the Two Enrollment Rates for Persons Aged 18–24

Several important differences emerge when we compare enrollment rates for high school graduates to overall enrollment rates for the age group as a whole. The key to all these patterns is differences in high school dropout rates.

First, basing enrollment rates on high school graduates makes the *level* of the enrollment rate appear more favorable for minorities. This is because the dropouts removed from the base constitute a larger share of the minority population (compare Figs. 1.1 and 2.8).

In contrast, basing the rate on high school graduates makes the *trend* in enrollment rates appear less favorable for blacks, both in absolute terms and in comparison to whites. Although the enrollment rate for black high school *graduates* remains more than three per-

[14] As we noted earlier, the *estimated* enrollment rate of black males dropped sharply, and perhaps spuriously, in 1988. If that estimate is accurate and the drop is maintained, the enrollment of black female high school graduates will have climbed again relative to that of black male graduates.

centage points below the peak years of the mid-1970s, the *overall* enrollment rate for all blacks in this age range is currently essentially identical to those of the peak years (Fig. 1.1). Moreover, between 1976 and 1987, the black-white gap in the overall enrollment rate grew by about four percentage points, while the gap in the estimated enrollment rate for high school graduates grew by nearly eight percentage points.

Changing the basis for enrollment rates also alters the difference between black males and black females. In both cases, *trends* in enrollment rates are similar for black males and females; the difference appears in the *level* of the enrollment rate. When we consider the entire age group, the enrollment rate among black females has been above that for black males—albeit usually by a small margin—in every year for more than a decade (Fig. 2.1). When we examine the enrollment rate of high school graduates, however, this pattern is reversed: In all but 3 of the past 17 years, the enrollment rate of black male graduates has been slightly higher than that of black female graduates. The explanation lies in the higher high school dropout rate shown by black males.

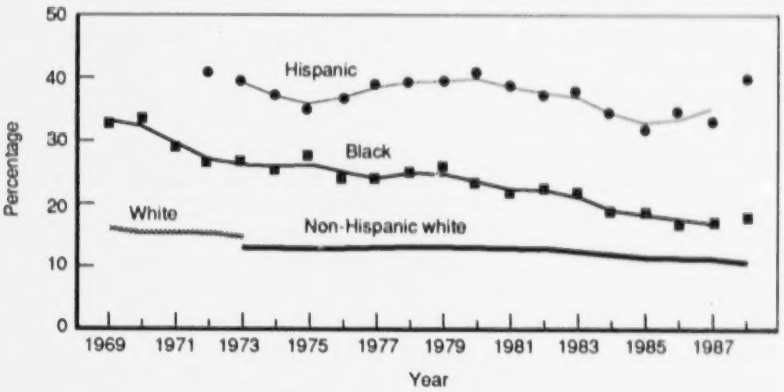
The postsecondary enrollment rate among Hispanics also shows substantially different patterns when we calculate rates for high school graduates, rather than for the age group as a whole. The estimated enrollment rate among Hispanic high school graduates has usually been a bit higher than that for black graduates (Fig. 2.8), while in the case of enrollment rates among the age group as a whole (Fig. 1.1), the rate for Hispanics is in almost every case lower than that for blacks.

High school dropout rates are key to interpreting the patterns described above, because they explain differences between the two enrollment rates typically used—the overall enrollment rate and the rate for high school graduates. The dropout rate can be calculated in many different ways, but the most useful measure for our purposes is the proportion of individuals aged 18–24 who are neither high school graduates nor currently enrolled in school. This statistic, labeled the "status dropout rate" by the National Center for Education Statistics (1989), tells us less than some alternative measures about the process of attrition from high school (Kominski, 1989) but is directly related to the postsecondary enrollment statistics we discussed above.[15]

[15]That is, the group referred to here as status dropouts is the primary group differentiating the two enrollment rates and accounts for the disparity between the trends shown by the two enrollment measures.

The most striking and consistent trend in status dropout rates over the past two decades was a steady and large decline in the dropout rates of black youth (see Fig. 2.9). In the late 1960s, approximately a third of black youth aged 18–24 were dropouts by this definition. Over the past several years, the rate has been approximately half that figure: roughly 17 percent. This improvement has been somewhat more erratic for black males than females (see Fig. 2.10), but over the two decades as a whole, the improvement was similar for both sexes. Because of the basically similar pace of improvement for males and females, the typically slightly higher dropout rate of males persisted through most of the period.

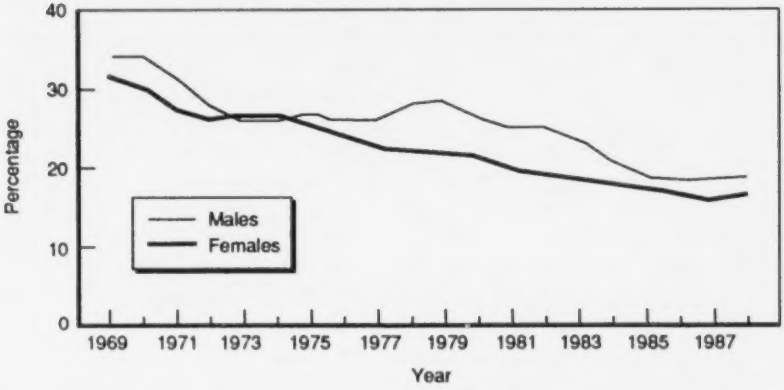
In the case of black youth aged 18–24, postsecondary enrollment rates have failed to reflect any of the improvement in the status dropout rate since the mid-1970s. That is why trends for blacks are more negative when enrollment rates are calculated for high school graduates rather than for the entire 18–24 age group. Until approximately 1986, this conclusion applied equally to black females and males; only time will reveal whether the trends for males and females have since begun to diverge.



SOURCES: Current Population Survey; Bureau of the Census, *School Enrollment: Social and Economic Characteristics of Students*, Series P-20, various years.

NOTE: Lines are weighted three-year moving averages.

Fig. 2.9—Status dropout rates—whites, blacks, and Hispanics aged 18–24



SOURCES: Current Population Survey; Bureau of the Census, *School Enrollment: Social and Economic Characteristics of Students*, Series P-20, various years.

NOTE: Weighted three-year moving averages, except for 1988.

Fig. 2.10—Black status dropout rates by sex, ages 18–24

Trends in status dropout rates also explain why the postsecondary enrollment of Hispanic youth compares more favorably to that of blacks when we consider only high school graduates. The gap in status dropout rates between Hispanics and blacks is gradually, if erratically, widening (Fig. 2.9), and the dropout rate among Hispanics is currently approximately twice that among blacks. Thus, the arithmetic difference between the two enrollment rates is larger for Hispanics than for blacks. When one shifts from enrollment rates for the entire age group to rates for high school graduates, one removes less than a fifth of the denominator for blacks but more than a third of the denominator for Hispanics.[16]

Prompt Entry into College

An alternative view of the enrollment of minority youth in the traditional college-age group is provided by the *college entry rate*—the proportion of high school graduates who enter college the following

[16]This is merely a statement of the arithmetic relationships among the enrollment measures and implies nothing about the academic preparedness of Hispanic or black dropouts.

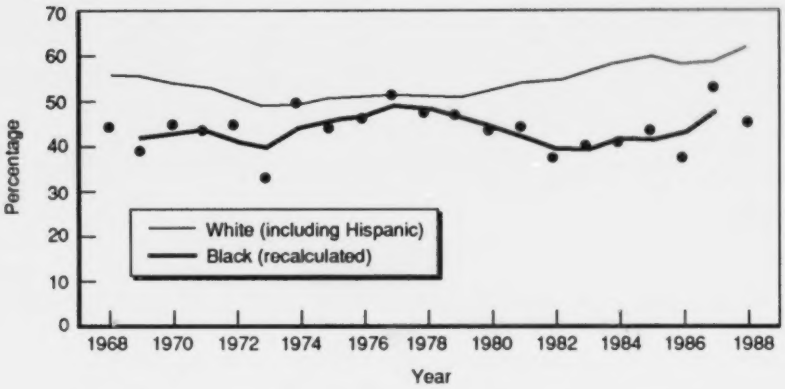
year. Although college entry rates are definable in various ways, the measure that has been important in the recent debate about minority enrollments is the proportion of youths aged 16–24 enrolled in college the October of the year following graduation from high school. This measure has been a primary focus of the extensive work of Hauser (1986, 1987a, 1987b; Hauser and Anderson, 1989), who reached particularly pessimistic conclusions about enrollment trends among blacks.

This entry rate measure is not by itself sufficient to indicate the extent to which the transition to college contributes to group disparities in educational attainment, because it is insensitive to later enrollment—for example, to the enrollment of youth leaving military service. For instance, in October 1986, only about half of white first-year college students below age 35 and 40 percent of black first-year students had graduated from high school that year (Bureau of the Census, 1988, Table 8).

Nonetheless, the rate of prompt entry into college is an essential part of the puzzle in that it reveals differences between population groups in a traditional path to a college education. Moreover, because this measure reflects the experience of students who left high school in a single year, it is more responsive than some enrollment rate measures to rapid changes in the experience of successive cohorts of high school graduates.

The basis for Hauser's pessimistic conclusions is clear in Fig. 2.11, particularly if we ignore the past few years of data, which were unavailable when Hauser's analysis was released.[17] The entry rate of recent black graduates rose rapidly until 1977, albeit with a short-lived drop in the early 1970s, reaching near parity with the rate for whites in 1977. However, it fell even more rapidly thereafter, dropping in the early 1980s to a level below even that of the late 1960s. In contrast, the enrollment of recent white graduates fell sharply until the middle 1970s, so that by the late 1970s, black and white entry rates were nearly equal. Then, as the black college entry rate began to plummet, the white rate began to rise almost as sharply.

[17]Comparable tabulations are unavailable for Hispanics; therefore, all estimates of college entry rates that appear in this report use the traditional census "white" category, which includes most Hispanics. The data for whites in Fig. 2.11 and the data for blacks after 1977 are from published Bureau of Labor Statistics tabulations of the CPS. Before 1977, however, the Bureau of Labor Statistics combined blacks with "others" in its tabulations. In this figure, the data before 1977 are for blacks only and come from Hauser (1987a).



SOURCES: Current Population Survey; Bureau of Labor Statistics, 1987, 1988, 1989b; Hauser, 1987a.

NOTE: Lines are weighted three-year moving averages.

Fig. 2.11—Enrollment of black and white recent high school graduates

The effect of these divergent trends was first to shrink, and then to expand dramatically, the black-white difference in the college entry rate of recent high school graduates. In 1968, the gap was about 13 percentage points. In 1978, it had shrunk to 2 percent, but by 1985 it had grown to nearly 18 percent. During the past few years, the trends have been erratic: The gap appears to have narrowed a bit but remains relatively large.

Comparing Entry Rates to Enrollment Rates

The contrast between entry rates and enrollment rates hinges on whether we focus on *trends* or *levels*.

Trends in College Entry Rates. Given the past few years of data, trends in this entry rate measure are fairly consistent with trends shown by the enrollment rates above. If we consider blacks alone, the entry rate measure shows that the upturn of the past few years has overcome some, but not all, of the enrollment decline of the late 1970s and early 1980s. This is consistent with trends in the enrollment rates of high school graduates (Fig. 2.8). As in the case of the enrollment rate, the more pessimistic conclusions emerge when

comparing blacks with whites, because the entry rate for blacks has not kept up with the improvement shown by whites over the past ten years.

As in the case of enrollment rates, negative findings pertaining to black entry rates stem largely from the failure of entry rates to mirror a decline in the dropout rate. In this case, the analog of a dropout rate would be the ratio of (1) individuals aged 16–24 who dropped out in the previous year to (2) all individuals who left high school in the previous year, either by graduating or dropping out. That ratio has been quite steady for whites over the past 20 years but has fallen markedly for blacks over the past decade. This improvement in blacks' high school completion has generally not been reflected in college entry rates.[18]

College entry rate trends also parallel enrollment rates in that they show only relatively small differences between black males and females since the mid-1970s. Hauser (1987a) showed that in the early 1970s, the entry rate of recent black female graduates rose relative to that of males (reaching parity by 1974), but that the trends were reasonably similar for the following decade. The decline in entry rates during the early 1980s was somewhat steeper and longer-lived among males, but the difference between the sexes was small relative to the magnitude of the overall change among blacks. All these patterns are quite consistent with the enrollment rate trends we described above.

Level of College Entry Rates. College entry rates do, however, differ markedly from the enrollment rates for ages 18–24 in terms of level: They are consistently much higher, for both blacks and whites. That is, the proportion of high school graduates enrolled in college the October immediately following graduation is substantially greater than the proportion of the age group enrolled in college. There are many reasons for this discrepancy. For example, entry rates do not reflect attrition from college, which is considerable. In addition, students who progress through college quickly and do not stay enrolled

[18]This becomes clear if we calculate the college entry rate for all individuals aged 16–24 who left high school in the previous year, whether by graduating or otherwise. For simplicity, this combined group could be called "recent leavers." In the way that the entry rate for graduates is analogous to the enrollment rate for graduates, the entry rate of recent leavers is analogous to the overall enrollment rate. Although not very useful in its own right, the entry rate for all leavers allows us to discern the impact of high school dropout rates on the more conventional entry rate measure for graduates. The entry rate among all leavers, like the overall enrollment rate, is as high for blacks now as it has ever been; a decline in the late 1970s and early 1980s has been fully offset by subsequent improvements.

after obtaining an undergraduate degree are counted in the common enrollment rates as not enrolled after they graduate, thus depressing the rates.

The discrepancy between the two types of measures is large. For example, in 1987, the proportion of all blacks aged 18–24 enrolled in college was about 22 percent. The comparable rate for black high school graduates was approximately 29 percent. The college entry rate for recent black high school graduates aged 16–24, however, was about 46 percent. In 1987, the enrollment rate for white high school graduates was approximately 36 percent, while the college entry rate was about 58 percent.[19]

Because entry rates are far higher than enrollment rates for both blacks and whites, this difference has little impact on conclusions about the *relative* progress of blacks and whites in postsecondary education over time. It does, however, have important implications for how one judges the educational status of any one group, and it is a key to interpreting the array of alternative enrollment measures. Clearly, if one is concerned with the proportion of students who successfully make the initial transition from high school to college, the more common enrollment rate figures are inappropriate measures and will lead to substantial underestimates.

ENROLLMENT OF OLDER STUDENTS

Although the traditional college-age population is an appropriate focus for analysis, we must also consider older students. As noted earlier, older students (defined here as those aged 25 or above) constitute a sizable minority—some 40 percent—of white, black, or Hispanic enrollment in postsecondary institutions. They also account for a sizable number of college freshmen. Unfortunately, available CPS tabulations do not permit detailed historical analysis of enrollment trends among all individuals over age 25. They do, however, permit assessment of trends in the 25–34 age group, which encompasses more than 60 percent of all students above age 25 and nearly a fourth of all college students of any age.

[19]Because entry rates for whites use the traditional CPS classification and include Hispanics, the enrollment rate we use for comparison here is also based on that group. The enrollment rate for non-Hispanic white high school graduates in 1987 was only trivially higher, however.

Enrollment of Persons Aged 25–34

The enrollment trends shown by this older age group appear to have differed appreciably from those of the traditional college-age population in recent years, and these differences hold the key to resolving—albeit incompletely—some apparently conflicting conclusions that have appeared in recent reports. In particular, they are essential for reconciling with the CPS results described above (which show no discrepancy in recent years between the enrollment trends of black males and females in the traditional college-age population) the frequent claim (based on IPEDS data) that the enrollment declines among blacks were confined to males.

We must interpret enrollment rate data for the 25–34 age range cautiously, because the CPS sample includes relatively few college students in this age range. The sample size for white students is sufficient to estimate trends with a reasonable degree of confidence, but the samples of minority students are too small. In this case, analyzing the data is worthwhile despite this weakness, because they are essential for reconciling the different measures that have been important in the recent debate about minority enrollments. Moreover, to the extent that these CPS estimates are consistent with IPEDS data (which do not share the problem of insufficient sample size), one can have more confidence in the results than the small CPS samples alone would justify. Still, one should bear in mind that the CPS estiates of minority enrollment rates for this age group could easily be if by as much as several percentage points.[20]

Enrollment rate trends for the 25–34 age group appear similar to those for the traditional college-age population in some respects, but in other respects important differences exist. Three comparisons between the two age groups are particularly important:

- In the older age group, as in the younger, the gap between the estimated enrollment rates of blacks and whites widened between the mid-1970s and mid-1980s.
- In the 18–34 age group, unlike the younger group, the enrollment rate trend of black males appears to have dropped and to have diverged from that of black females. This decline,

[20]To compensate for this margin of error, all the statistics we report here for older students are unweighted averages of three years of CPS data. Even the margin of error of the averages, however, is large. For example, the standard error of the averaged estimated enrollment rate for older black males in the 1984–1986 period is 1.7 percentage points; in the 1974–1976 period, 2.5 percentage points.

however, was largely paralleled by a drop in the enrollment rate of white males.

- Despite this drop in the enrollment rate of older black males, no evidence exists that the widening gap in enrollment rates between blacks and whites in this age group is attributable more to men than to women. This stands in partial contrast to the younger age group, in which men were clearly *less* responsible than women for the growing gap between blacks and whites.

Considering males and females together, the enrollment rates for the older age group have been low for both blacks and whites and diverged only modestly between the mid-1970s and the mid-1980s. The *estimated* college enrollment rate of blacks aged 25–34 dropped, although not statistically significantly, from approximately 8 percent to approximately 6 percent, according to the CPS.[21] During the same period, the enrollment rate of whites in this age range was stable at approximately 7½ to 8 percent.[22]

The decline among blacks appears to have been quite different for males than for females, although the small sample size precludes assessing this sex difference with confidence. The estimated enrollment rate for black males showed a substantial—albeit not statistically significant—drop during this period, from about 10 percent to 6 percent (see Fig. 2.12, center set of bars).[23] In contrast, the estimated enrollment rate for older black females stayed reasonably constant.

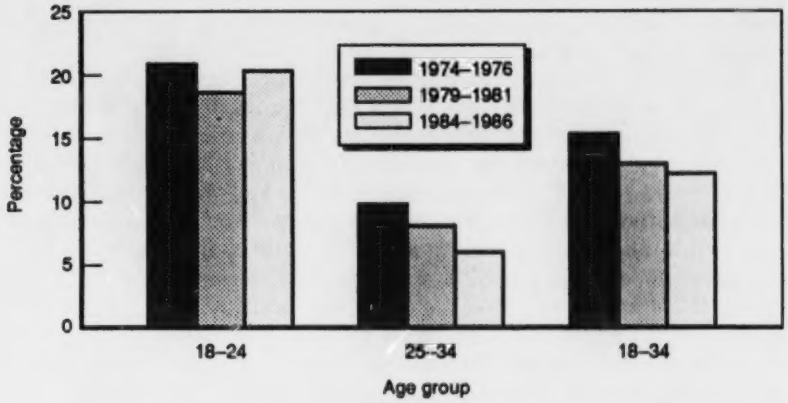
This sex difference in enrollment rate trends appeared among whites in the 25–34 age group as well. White males in this age range, like black males, showed a decline in enrollment rates, but it was slightly smaller among whites: from 10 to approximately 7 percent (see Fig. 2.13, center set of bars).[24] At the same time, the enroll-

[21]These and the following estimates for this age group are from U.S. Bureau of the Census, *Social and Economic Characteristics of Students*, Series P-20, Table 15, various years.

[22]These analyses of youth aged 25–34, in contrast to those we reported above, use the standard census "white" category, which includes Hispanics, because the necessary tabulations were unavailable for Hispanics in the mid-1970s. The more recent data, however, indicate that including Hispanics in these analyses has little impact on estimates for whites.

[23]$t = 1.2$.

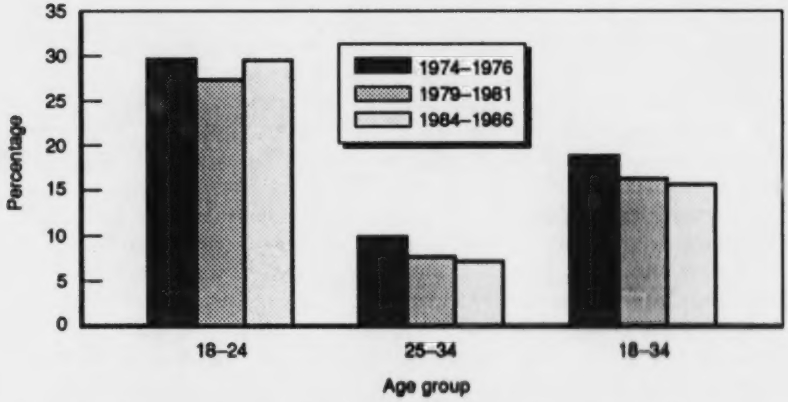
[24]This change, though smaller than that for black males, was statistically significant ($t = 2.6$) because of the much larger number of whites in the CPS sample.



SOURCES: Current Population Survey; Bureau of the Census, *School Enrollment: Social and Economic Characteristics of Students*, Series P-20, various years.

NOTE: Unweighted three-year averages.

Fig. 2.12—Black male college enrollment rates for three age groups



SOURCES: Current Population Survey; Bureau of the Census, *School Enrollment: Social and Economic Characteristics of Students*, Series P-20, various years.

NOTE: Unweighted three-year averages.

Fig. 2.13—White male college enrollment rates for three age groups

ment rate for older white females *increased* from 6 to 7½ percent, largely offsetting the decline among white males.[25]

Given these patterns, should the divergence of the enrollment rates of blacks and whites in the 25–34 age group be attributed to males or females? In terms of the CPS *estimates* for the mid-1970s and mid-1980s, we cannot say; the black-white differences in enrollment trends were small for both males and females and were only trivially different between the two population groups. All these differences were small, not only in absolute terms, but especially relative to the margin of the error in the CPS. Perhaps the safest conclusion is that in the 25–34 age group, no evidence exists that the widening gap between blacks and whites in enrollment rates is any more attributable to males than to females, for the decline among black males was roughly paralleled by a decline among white males.

The Combined 18–34 Age Group

The common focus on the 18–24 age group in the debate about minority enrollments is arbitrary; any number of other age groups would be justifiable as well. One alternative would be to combine the traditional college-age population with the 25–34 group we discussed above and focus on the broader 18–34 age group. Indeed, although this broader age group has not played a salient role in the recent debate about minority enrollments, it is the age group used in many standard CPS tabulations of enrollment counts and rates.

Replacing the 18–24 age group with the broader 18–34 age group substantially changes some of the enrollment patterns shown by blacks and whites. This illustrates an important caveat about enrollment statistics: Some fundamental conclusions one reaches about minorities' relative progress in postsecondary education hinge in part on relatively arbitrary decisions about the measures employed.

The enrollment rate trends shown by males in the broader 18–34 age group are substantially more negative than those in the traditional 18–24 group because of the enrollment rate decline evident among older males. This is almost equally true of whites and blacks, however. Accordingly, regardless of which age group we focus on, black and white males show similar trends. We can see this graphically in Figs. 2.12 and 2.13, which show the enrollment rate trends for the traditional college-age group (left-hand set of bars), the 25–34 age

[25]This increase was not statistically significant (t = 1.6).

group (center bars), and the combined 18–34 age group (right-hand bars). As we discussed earlier, between the mid-1970s and the mid-1980s, the estimated enrollment rate of black males in the 18–24 age group dipped somewhat but ended roughly where it began: at approximately 20 percent (Fig. 2.12). The pattern among white males is virtually the same (Fig. 2.13), except that their enrollment rate was considerably higher than that of blacks in all years. In contrast, in the broader 18–34 age group, the enrollment rate of black males dropped by roughly a fifth, from approximately 15 percent to 12 percent. Again, the pattern among white males is similar (Fig. 2.13), albeit with higher enrollment rates.

Although including students aged 25–34 has essentially identical effects on enrollment rate *trends* for black and white males, it markedly shrinks the cross-sectional difference between them. That is, black-white differences are markedly smaller in the 18–34 age group than in the traditional 18–24 group. In the mid-1980s, the enrollment rates for white and black males in the conventional 18–24 age group were about 29 and 20 percent, respectively. That is, the enrollment rate of whites was nearly twice that of blacks. In the broader 18–34 age group, the white estimated enrollment rate (15.9 percent) was approximately 30 percent higher than the black rate (12.2 percent).[26]

The explanation for this apparent paradox—that adding older students does nothing to the relative trends of black and white males but markedly shrinks the cross-sectional difference between them—lies with differences in the age structure of population groups. Because blacks have a higher birthrate than whites, the black population is younger. Therefore, the older age group, with its markedly lower enrollment rate, is a substantially larger percentage of the total among whites than among blacks, and merging the 25–34 group depresses the enrollment rate more for whites than for blacks.

In the case of females, changing focus from the 18–24 group to the broader 18–34 group has somewhat different effects. As in the case of males, this switch lessens the cross-sectional difference between blacks and whites. In addition, focusing on the broader age group leads to a smaller divergence between blacks and whites, in large part because the proportionally larger 25–34 group in the white population washes out much of the increase in the enrollment rate of white females.

[26]This attenuation is not an artifact of scale. Even when the enrollment rates are normalized, the black-white difference is larger in the younger age group.

ENROLLMENT OF STUDENTS OF ALL AGES: THE IPEDS DATA

One of the two most commonly cited enrollment statistics for minorities is the annual count of students enrolled, across all ages and levels, taken from the biennial IPEDS enrollment survey (see, for example, American Council on Education, 1988; Arbeiter, 1986; Center for Education Statistics, 1988; Mingle, 1987). These enrollment numbers typically come from the U.S. Department of Education's regular institutional survey, currently known as IPEDS but until recently called the Higher Education General Information Survey (HEGIS). The IPEDS survey attempts to cover all accredited institutions of higher education.[27] Although IPEDS now includes other postsecondary institutions as well, the numbers we report here include only accredited institutions of higher education.

These total enrollment statistics do not include information on the age of students or the recency of their graduation from high school. Accordingly, we cannot use them to show group disparities in enrollment rates or entry rates. Still, these data are important. The IPEDS and CPS data suffer from different weaknesses; thus, to the extent that they point to similar conclusions, we can accept those conclusions with more confidence. For example, although the IPEDS data avoid certain response biases in survey estimates of enrollment (such as people overstating their educational experience, or household respondents giving incorrect answers about family members whose enrollment status they are not certain of), they are subject to other types of errors, such as imputation errors from institutional nonresponse and incorrect classifications of students into population groups.

Over the period from 1976 on, IPEDS data appear at first glance inconsistent with CPS data in several respects pertaining to black and white enrollments. Perhaps most important, IPEDS data are the primary basis for recent reports stressing the declining enrollment of black males. More specifically, there are three apparent inconsistencies:

- When males and females are pooled, IPEDS data suggest that the enrollments of both blacks and whites have increased, although blacks' enrollment has increased somewhat less. In

[27]Specifically, IPEDS attempts to survey all four-, two-, and public less-than-two-year institutions, but it samples only approximately one-sixth of all private less-than-two-year schools (National Center for Education Statistics, 1988c).

contrast, CPS data show a steadily widening gap between blacks and whites in enrollment rates in the traditional (18–24) age group.

- The IPEDS data show dropping enrollment counts for black males during a period of population growth. This implies a sizable drop in enrollment rates. The CPS estimates for the traditional age group (18–24), however, show basically stable enrollment rates for black males during that period.
- The IPEDS estimates show that the decline in enrollment was limited to males; the enrollment counts for black females increased markedly. This has led some observers to conclude that the growing disparity between black and white enrollment rates is attributable primarily to black males. The CPS estimates, however, suggest that women are more responsible than men for the growing gap in enrollment *rates* between blacks and whites.

These contradictions, however, are more apparent than real. For the most part, they are resolvable by taking three factors into account: differences between enrollment counts and rates; age-related differences in enrollment trends; and recent, substantial sex differences in enrollment trends that appear clearly among whites as well as blacks. Discrepancies that remain after these factors are taken into account may stem partly from the margin of error in the estimates.

The consistency of IPEDS and CPS estimates for Hispanics has not been a matter of controversy. The IPEDS estimates for Hispanics are consistent with the CPS estimates above in showing a large increase in enrollment *counts*. Over the 1976–1988 period, total Hispanic enrollments increased by more than 77 percent. Moreover, this increase appeared among both males and females, although it was far sharper among females. The number of enrolled Hispanic males increased by some 48 percent, while the number of females enrolled increased by 113 percent. Because of this faster increase, more female Hispanics than male Hispanics have been enrolled since 1980. These favorable trends in *counts*, however, do not translate into comparably auspicious trends in *rates*, because the very rapid growth in the size of the Hispanic population has offset much of this gain in enrollments. As we noted earlier, in the case of the traditional age group (18–24) the CPS data discussed above indicate that population growth entirely offsets enrollment increases, so the proportion of

Hispanic young adults attending postsecondary education has not risen at all.

How Much Are Black and White Enrollments Diverging?

The IPEDS data show a moderate divergence between white and black enrollment trends from 1976 to 1988. Over that period, white enrollments increased some 13 percent, from 9.1 to 10.3 million. Black enrollments increased approximately 9 percent, from 1.03 to 1.13 million.

Black and white enrollment *rates,* however, are diverging more than enrollment *counts*. As noted earlier, because of differences in population growth, the relatively small divergence in enrollment *counts* among blacks and whites evident in IPEDS data translates into the substantially widening gap in enrollment *rates* evident in the CPS data. Moreover, as we noted above, this divergence of enrollment rates was more pronounced in the younger age group (18–24). Thus, because the IPEDS data include all ages and the most commonly cited CPS statistics include only the 18–24 age group, this apparent inconsistency among the IPEDS and CPS data is exacerbated.

Other differences between the IPEDS and CPS data appear irrelevant to this apparent discrepancy. Indeed, *within* the CPS data, the discrepancy between trends in enrollment rates and enrollment counts is greater still. The CPS counts of enrolled students through age 34 (which include approximately 85 percent of both black and white college students and therefore should be fairly similar to IPEDS estimates) show modest and reasonably similar increases in enrollments among both blacks and whites during the 1976–1986 period. They differ from IPEDS, however, in that they suggest a proportionately slightly *larger* increase among blacks: 3 percent among whites, and 7 percent among blacks.[28]

Is the Enrollment of Black Males Stable or Declining?

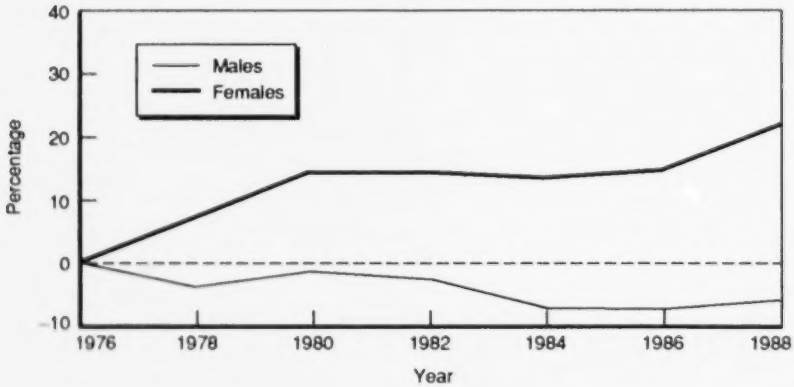
When we disaggregate IPEDS data by gender and population group, a troubling finding emerges: The estimated number of black

[28]Bureau of the Census, *Social and Economic Characteristics of Students,* Table 15, various years. One disturbing discrepancy is that census enrollment counts for males are a bit higher than the corresponding IPEDS counts. This is particularly so for black males. The reverse should be true, because of the exclusion of students over age 34 in these particular census counts (see the appendix).

males enrolled fell roughly 6 percent between 1976 and 1988, despite the growth in the black population during that period (see Fig. 2.14).[29] As we noted in the introduction, it was this finding, more than any other, that alarmed some observers and led them to conclude that black males are the group for which enrollment trends are most problematic. The growth in overall black enrollments indicated by IPEDS is caused by a large increase (approximately 22 percent) in the estimated enrollment of black women that was more than sufficient to offset the decline among black males.

The CPS estimates above, however, show basically stable enrollment rates for black males. Are these estimates inconsistent? To reconcile the IPEDS and CPS estimates, we must consider enrollment rates separately from counts.

Enrollment Rates. In this instance, the inconsistency between IPEDS data—which imply a sizable enrollment *rate* decline among black males—and the fairly stable rates shown by the most commonly cited CPS estimates appears merely a function of the ages considered.



SOURCES: Center for Education Statistics (1988); National Center for Education Statistics, unpublished tabulations of the IPEDS database.

Fig. 2.14—Percentage change in black college enrollment counts, by sex, all ages and levels

[29]Black male enrollments fell some 7 percent from 1976 to 1986 but then increased slightly in 1988.

The most commonly cited CPS estimates, for ages 18–24, showed a transient and small decline in the enrollment rates of black and white males during the late 1970s but have since rebounded to approximately the same level as in the peak years of the mid-1970s. As we noted above, however, the enrollment rate in the broader 18–34 age range, which should approximate IPEDS results, in fact shows a substantial decline in the enrollment rate of both black and white males since the mid-1970s. This stems from the decline in the enrollment rate of the large 25–34 age group (Figs. 2.12 and 2.13).

Enrollment Counts. Although the CPS and IPEDS data are consistent in their implications about enrollment *rates*, they are inconsistent with respect to counts. The IPEDS data suggest a drop of 7 percent in the total enrollment of black males from 1976 to 1986. The CPS estimates for students 34 and younger suggest stable counts for black males during that period. A portion of this discrepancy might be explained by trends among students over 35; a rapid drop in the number of black male students in that age range would contribute to a decline in IPEDS estimates without affecting the most common CPS estimates. Because the students over age 35 constitute a small share of the total, however, much of the explanation for this discrepancy is unlikely to lie there. Moreover, CPS data for 1984 through 1986 do not suggest any drop in the enrollment of black males over age 35.[30] Without more data, reconciling these conflicting estimates is difficult.

Which Gender Is Responsible for the Divergence between Black and White Enrollments?

Although IPEDS data have been cited as evidence that black males are responsible for the growing gap between black and white enrollments, IPEDS data are actually consistent with CPS data in suggesting that the divergence is attributable more to women than to men. Inferences to the contrary stem from incomplete reporting of the IPEDS data. For example, the American Council on Education (1988) and *The New York Times* (1989) reports cited above focused on the fact that the IPEDS estimate of enrollment changes for black males was more negative than for black females, white females, or white

[30]The CPS sample sizes for older black male students are too small to draw any precise estimates about that group. Between 1984 and 1986, the estimated number of black male students over age 34 actually rose, but too little to support any inference about an increase. Relevant tabulations have not been published for other years.

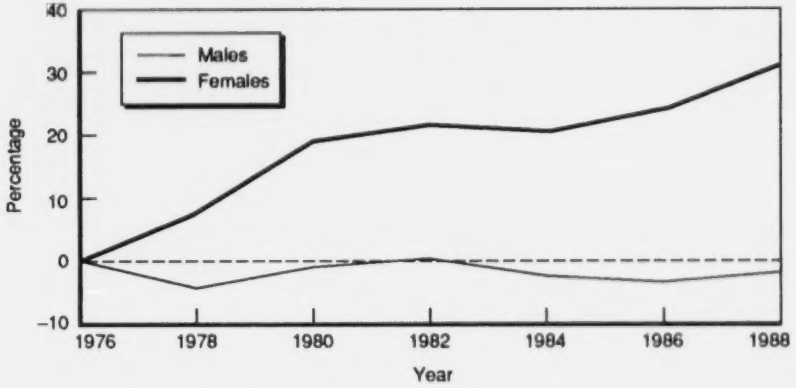
males. Neither report, however, compared the black-white difference in trends between males and females or the sex difference in trends between blacks and whites. When we make those comparisons, the IPEDS data appear consistent with CPS data in suggesting that females are more responsible for the divergence of enrollment trends.

The IPEDS data show a black-white difference in enrollment trends among both males and females, but a larger difference among females. Between 1976 and 1988, the black-white difference in the enrollment decline among males was approximately four percentage points: a drop of some 6 percent among black males and about 2 percent among white males. In contrast, the black-white difference in enrollment trends among women was more than twice as large—roughly nine percentage points. Between 1976 and 1988, the number of white women enrolled increased by 31 percent, while the number of black women increased only 22 percent. The enrollment of white women grew faster than that of black women during the late 1970s and continued to grow after 1980, while the enrollment of black women stagnated until 1986.

The IPEDS also shows a clear sex difference in enrollment trends: The trend among women is more favorable than the trend among males. This sex difference occurred in both groups but was larger among whites. The IPEDS data show a 28 percentage point difference between black males and black females in terms of the change in enrollments from 1976 to 1988 (Fig. 2.14). In contrast, the sex difference among whites was 33 percentage points (see Fig. 2.15). This is consistent with CPS estimates for the 18–34 age group, which show a moderately larger sex difference in enrollment trends for whites than for blacks.[31]

Thus, the patterns evident in the IPEDS and CPS data are largely explainable by two main effects: a tendency for blacks' enrollment to fall behind that of whites, regardless of gender, and a sharp divergence of enrollment trends between males and females that appears clearly among both whites and blacks. To the extent that an interaction between sex and population group enters into the picture, it points to white females, rather than black males, as the anomalous group.

[31]The CPS estimates (for students through age 34) of the change in enrollment counts from 1976 to 1986 are 13 percentage points for blacks and 17 percentage points for whites. Using 1974–1976 and 1984–1986 averages, we find that the sex difference in enrollment growth was 15 percentage points among blacks and 22 percentage points among whites.



SOURCES: Center for Education Statistics (1988); National Center for Education Statistics, unpublished tabulations of the IPEDS database.

Fig. 2.15—Percentage change in white college enrollment counts, by sex, all ages and levels

ENROLLMENT COUNTS, BY TYPE OF INSTITUTION

Information on enrollments by type of school is far scarcer than information on total enrollments. Still, IPEDS data are sufficient to indicate that little change has occurred over the past decade in the types of institutions attended by either blacks or whites, if all types of enrollments are considered together and if consideration is limited to accredited schools in the IPEDS data or to "regular" schools in the CPS data.

Two- versus Four-Year and Public versus Private Schools

The most detailed relevant analysis of the HEGIS and IPEDS data tabulated enrollment counts in 1976 and 1986 by gender, institutional control (public/private), and two- versus four-year institutions separately for several population groups (Pelavin and Kane, 1988; see Table 2.1).[32] This analysis showed virtually no change in the distribution of black or white students across types of schools. For exam-

[32]More detail appears in Pelavin and Kane, 1988, Table A.7.

Table 2.1

PERCENTAGE OF COLLEGE STUDENTS IN EACH POPULATION GROUP ENROLLED IN EACH TYPE OF POSTSECONDARY SCHOOL

Type of School	1976			1986		
	Male	Female	Total	Male	Female	Total
			White, Non-Hispanic			
Public, 4-year	45	45	45	44	42	43
Public, 2-year	32	34	33	32	36	34
Private, 4-year	22	20	21	22	20	21
Private, 2-year	(a)	(a)	1	(a)	(a)	2
			Black, Non-Hispanic			
Public, 4-year	39	42	41	39	39	39
Public, 2-year	41	39	40	39	40	40
Private, 4-year	18	17	18	19	17	18
Private, 2-year	(a)	(a)	2	(a)	(a)	3
			Hispanic			
Public, 4-year	35	35	35	34	33	33
Public, 2-year	47	45	46	53	54	53
Private, 4-year	15	15	15	12	11	12
Private, 2-year	(a)	(a)	4	(a)	(a)	2

SOURCE: Pelavin and Kane (1988), Table A.7.

[a]Not available.

ple, in both years, 39 percent of black males attended public four-year colleges, and 18–19 percent attended private four-year colleges. Some increase occurred in the proportion of both white and black students attending private two-year colleges, but both the number of students and the change were small.

In contrast, the IPEDS data suggest more substantial changes in the enrollment of Hispanic students. The proportion of Hispanic students enrolled in private institutions (two- or four-year) dropped modestly, while the proportion attending public two-year institutions increased accordingly.

Proprietary Trade Schools

An important aspect of the current controversy about possible changes in the institutions attended by minority students concerns "proprietary trade schools." This term typically refers to private, non-degree-granting institutions that offer some form of vocational, tech-

nical, or business training. Some observers, for example, have expressed concern that the proportion of black male students enrolled in such schools may have become disproportionately high.

Enrollments in proprietary trade schools are excluded from both the CPS and IPEDS data we discussed above (see appendix). Thus, the trends we describe here are not substantially biased by a confusion of proprietary and regular-college enrollments. Nonetheless, possible differences among population groups in enrollment in proprietary trade schools remain a matter of serious concern.

Unfortunately, no reasonable data on trends in enrollment in proprietary trade schools exist yet. Several surveys have included relevant questions, but those surveys have been inconsistent with each other in terms of the questions used or other aspects of the survey design. Internally consistent questions have recently been incorporated into two surveys, the Bureau of the Census' Survey of Income and Program Participation (SIPP) and the Department of Education's National Postsecondary Student Aid Study (NPSAS). However, neither survey is old enough to provide trend data at this time.

Data on proprietary enrollments in the 1980s are available both from an experimental question added to the October 1982 CPS and from the 1986 SIPP. Although we cannot yet use these data to assess trends, we can use them to explore whether patterns of proprietary enrollment differed between blacks and whites during the 1980s.

Neither data source suggested a large difference between blacks and whites in terms of the total proportion of adults enrolled in vocational, trade, technical, and business schools.[33] The CPS results suggest that black enrollments in such schools are proportionately slightly lower than those of whites; the SIPP suggests the reverse. The discrepancy between the two could stem from any number of sources. One source of the discrepancy between the CPS and SIPP is that the CPS asked about enrollment at the date of the survey, while the SIPP asks about enrollment at any time during the previous 12 months. This difference leads to higher estimates of enrollment in proprietary schools in the SIPP because of the short time span of some proprietary programs. Other sources of the discrepancy could be sampling error, changes from 1982 to 1986, and differences in the way the questions define types of enrollment.

[33]Unpublished census tabulations of the October 1982 CPS and the April–July 1986 administrations of the SIPP.

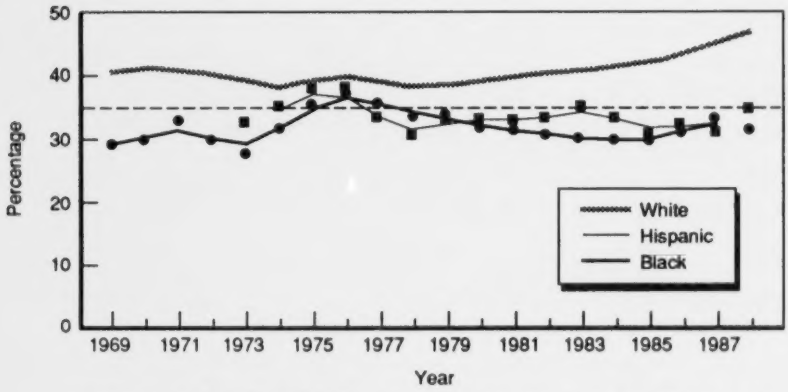
STUDENTS WHO HAVE LEFT COLLEGE

As we noted earlier, enrollment rate statistics pertaining to broad age ranges have a potentially serious conceptual flaw in that individuals who enrolled in college but left by the time of the survey are treated as though they never enrolled. This is true regardless of whether the individuals completed college or dropped out before completion. Although a thorough investigation of graduation and attrition from college is beyond this report's scope, we must consider a few measures of progression through college, both as outcomes in their own right and to better understand the conventional enrollment statistics.

Students Enrolled in or Graduated from College

One step in handling this flaw in the conventional enrollment rates is to modify the usual enrollment rate for high school graduates so that college graduates who are no longer enrolled are counted along with college students. (College graduates who remain enrolled, for example, as graduate students, are already counted as students in the standard enrollment statistics.) The measure used here is the proportion of high school graduates aged 18–24 who are either currently enrolled or graduates.

This alternative measure of college enrollment and graduation leads to somewhat more pessimistic conclusions about minority participation in postsecondary education. At first glance, the trends seem similar to those already discussed: White youth showed substantial progress over the past decade that was not mirrored in the black or Hispanic populations, and the enrollment rate for blacks remains somewhat below its peak of the mid-1970s (see Fig. 2.16; compare with Fig. 2.8). The contrast between white and minority students, however, is more marked in two respects when we take college graduates into account. First, the white-minority differences in recent years are greater. For example, in 1987, the simple college enrollment rate for high school graduates aged 18–24 discussed above showed a disparity of 8 percentage points between whites and either blacks or Hispanics. Using this alternative measure of enrollment or graduation, those differences grow to 13 percentage points. Second, the disparity in *trends* between whites and blacks is also exacerbated by a small amount when college graduates are taken into account.



SOURCES: Current Population Survey; Bureau of the Census, *School Enrollment: Social and Economic Characteristics of Students*, Series P-20, various years.

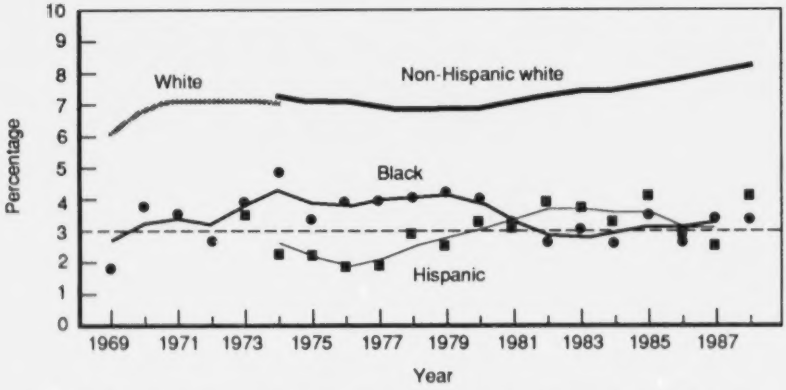
NOTE: Lines are three-year weighted moving averages.

Fig. 2.16—College enrolled or graduated as a percentage of high school graduates aged 18–24—whites, blacks, and Hispanics

College Graduates

The reason why adjusting enrollment statistics this way exacerbates disparities among population groups is straightforward: The proportion of old white high school graduates who have graduated from college by the time they are 24 and are no longer enrolled, though small, is much larger than the proportion of minorities. In 1987, some 8 percent of white high school graduates in the 18–24 age range had graduated from college and were no longer enrolled, in contrast to roughly 3 percent of black or Hispanic high school graduates (see Fig. 2.17). Moreover, the proportion of whites who are graduates has risen modestly over the past decade. In contrast, the estimated proportion of blacks who fit this description has not shown any consistent trend over the past decade.[34]

[34]The estimated graduation rates among Hispanics are unstable because of small sample sizes. The small increase in the *estimated* proportion between the mid-1970s and the mid-1980s, however, explains why the divergence of whites and Hispanics in Fig. 2.16 is no greater than in Fig. 2.8.



SOURCES: Current Population Survey; Bureau of the Census, *School Enrollment: Social and Economic Characteristics of Students*, Series P-20, various years.

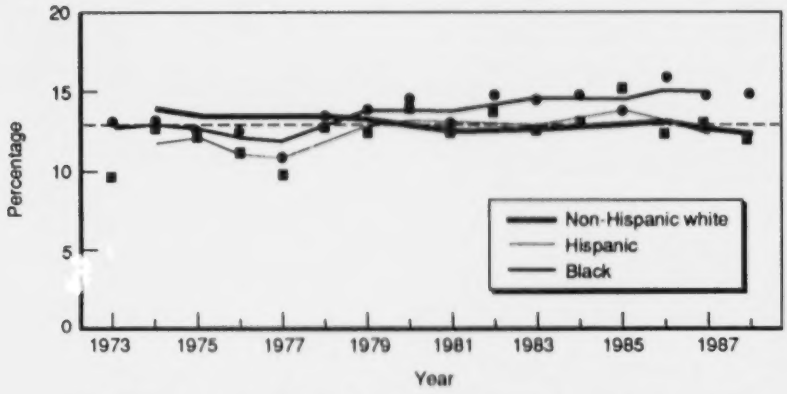
NOTE: Lines are three-year weighted moving averages.

Fig. 2.17—College graduates, not enrolled, as a percentage of high school graduates aged 18–24—whites, blacks, and Hispanics

Students Who Dropped Out of College

Attrition from college can be measured in various ways. One readily available but incomplete college dropout measure is the proportion of high school graduates of a given age (in this case, 18–24) who have completed at least one year of college but have not graduated from college and are currently not enrolled.

Using this particular measure, the proportion of high school graduates who drop out of college is quite similar for blacks, Hispanics, and whites (see Fig. 2.18). In 1987, the estimates ranged from under 13 percent of white and Hispanic high school graduates to just over 15 percent of black high school graduates. However, though the rate for whites has been nearly constant since the early 1970s, the estimated rate for blacks has risen slightly—by some 2½ percentage points—since 1977. These figures indicate that if people who attended at least one year of college but dropped out were counted along with currently enrolled individuals in estimating enrollment rates, the patterns shown in Fig. 2.8 would be somewhat different. The discrepancy between blacks and whites would be a few percentage points



SOURCES: Current Population Survey, Bureau of the Census, *School Enrollment: Social and Economic Characteristics of Students*, Series P-20, various years.

NOTE: Lines are three-year weighted moving averages.

Fig. 2.18—Percentage of high school graduates aged 18–24 who completed at least one year of college but did not graduate or were not enrolled—whites, blacks, and Hispanics

smaller because of the slightly higher percentage of black high school graduates who are dropouts by this measure.

Although this one college dropout measure helps to clarify standard enrollment rates and indicates reason for concern about possible increases in the attrition of black youth from college, it provides only a very incomplete view of the problem of attrition. It does not identify the many individuals who drop out of college within the first year, and it identifies as dropouts individuals who obtain a two-year degree and then leave school.[35] An adequate assessment of attrition from college would require substantial additional analysis, ideally with longitudinal data that follow individuals for some years after leaving high school.

[35]This is a result of the way that enrollment and completion questions are currently asked in the CPS.

III. CORRELATES OF TRENDS IN POSTSECONDARY ENROLLMENT

The minority enrollment trends described in the previous section, though less negative than some observers have held, still pose disturbing questions. Why, for example, have the postsecondary enrollment gains shown by black youth up to the mid-1970s failed to continue? Why has the enrollment of blacks in postsecondary education failed to keep pace with their declining high school dropout rate? Why have enrollment trends been more favorable for whites than for blacks or Hispanics?

The following sections address various factors that could plausibly affect trends in minority enrollments. The first section discusses several aspects of the academic preparedness of minority youth, relying both on published sources and previously unpublished analyses. Subsequent sections discuss participation in the military, socioeconomic status, student aspirations, and general educational development certificates (GEDs).

TRENDS IN MINORITY YOUTH'S ACADEMIC PREPAREDNESS

Because black and Hispanic students are, on average, less well prepared for postsecondary education than white students, changes in academic preparedness may be critical for explaining enrollment trends. Moreover, they may be fundamental to interpreting enrollment trends even if they do not explain them. For example, what are the implications of the fairly static enrollment rates of young black adults described in the previous section, and the concomitant growth of the enrollment gap between blacks and whites? The answer depends in part on information about trends in academic preparedness before college. Growing disparities in enrollments, coupled with an increasing gap in academic preparedness, would focus attention on elementary and secondary education. On the other hand, growing disparities in enrollments, coupled with a shrinking gap in academic performance, should focus attention on the transition to college as well.

In discussions of minority postsecondary enrollment trends, high school graduation rates sometimes serve as the sole indication of mi-

nority youth's academic preparedness for postsecondary education, and high school graduates are sometimes referred to as those "eligible" for postsecondary education (see, for example, Hill, 1983). Graduation rates are clearly an important consideration, and, as the previous section showed, black youth have gained markedly on whites in terms of this measure, erasing a substantial share of the large gap that existed 20 years ago. This measure, however, is not by itself an adequate indicator of academic preparedness for college. More than just a high school diploma is required for admission even to moderately selective colleges, and the fact of high school graduation does not necessarily guarantee that students are sufficiently prepared to succeed even in unselective colleges. Therefore, looking at other indicators of academic preparedness that could affect either admission to college or the likelihood of successful completion once admitted is essential.

Participation in the Academic Track

A simple indicator of academic preparedness is the proportion of high school students who participate in the academic track or program. This variable provides only a rough indication of which students can be considered college bound. Although the classification of many students in terms of school program is clear, the labeling of others is ambiguous in that many students take courses that are unclear in terms of program or that are in more than one program (see, for example, National Assessment of Vocational Education, 1988). Still, changes in program participation can offer a rough indication of the extent to which groups of students are taking courses that might prepare them for college.

Data on program participation are available for the high school classes of 1972, 1980, and 1987. (Data for the 1972 and 1980 classes are from the National Longitudinal Study and the High School and Beyond Survey, as reported by Arbeiter, 1986; data for the class of 1987 are from RAND tabulations of the 11th-grade sample in the 1986 National Assessment of Educational Progress [NAEP].) These data reflect roughly the same cohorts as those represented by the college entry rates of recent high school graduates in the same years.

Given only these three observations, shifts in self-reported program participation appear to shed little light on postsecondary enrollment trends, although a relationship might be more apparent if more frequent data from consistent data sources existed. Between

the high school classes of 1972 and 1980, the proportion of black seniors reporting themselves to be in the academic track was essentially constant at approximately one-third, while the proportion of white seniors in the academic track declined slightly, from an estimated 46 percent to 42 percent. The black college entry rate was nonetheless slightly higher in 1980 (44 versus 41 percent; see Fig. 2.11).[1] The NAEP data indicate that considerably higher proportions of both black and white students reported themselves to be in the academic program later in the 1980s: 45 percent of blacks, and 54 percent of whites. The higher percentages in the NAEP may reflect the younger age group or other differences between the NAEP and the earlier surveys, or it may represent a true increase. Regardless, the cross-sectional difference between whites and blacks remained about the same as it was in the 1980 survey. The increase in the percentage of blacks in the academic program, if real, was not matched by a comparable change in black college entry rates, which were 44 percent in 1980 and 45 percent in 1987. Moreover, despite the stability of the black-white cross-sectional difference in participation in the academic track, the black-white gap in college-entry rates of recent graduates was larger in 1987 than in 1980.

Academic Course Work

A stronger measure of whether students are in college preparatory programs can be obtained by examining the specific courses they take. Even course work records need to be taken with a grain of salt, however, because courses with similar names sometimes have dissimilar content. For example, a recent study in Massachusetts, where approximately three-fourths of all students take Algebra I, found that many Algebra I courses were substantially watered down relative to those attended by students expecting to attend competitive four-year colleges (Massachusetts Department of Education, 1985). The educational reform movement of the 1980s, a common component of which was an increase in required course work, may have heightened those ambiguities by increasing the incentives to label courses inappropriately. Still, transcript records of course work offer significant information about academic preparedness for college and are an important

[1]The college entry rates we give here, like those in the previous section, are weighted three-year moving averages.

part of the information available to colleges about applicants' qualifications.

In general, changes in course work offer no explanation for the recent lack of progress in minority postsecondary enrollments or for the growing disparity between minority and white enrollments, though they might have contributed modestly to the slight upturn in black enrollments over the past few years. On the other hand, the most recent data show differences between population groups in college-preparatory course work that might contribute to the persistence of an enrollment gap between population groups, particularly at competitive four-year colleges.[2]

Overall, high school students showed a small increase in total credits between the mid-1970s and 1987, with most of the increase comprising academic course work (see Table 3.1). The gains of black and white students were very similar, and cross-sectional differences between blacks and whites were generally inconsequential. Hispanic students tended to show somewhat smaller increases over the entire period. Mathematics courses accounted for a large share of the total increase in all groups.

A more detailed look at course work in 1982 and 1987, on the other hand, reveals the persistence of large differences between minority and white students in advanced academic course work. Increases in academic course work were sizable during that time period, particularly considering the short time span. These changes showed few differences among population groups, however, and the few that occurred failed to erode (and in a few instances actually exacerbated) group differences in advanced course work. Minority students tended to show larger gains than whites in what might be called middle-level course work—that is, courses toward the beginning of the sequence of college-track course work that are taken by a large majority of high school graduates. In contrast, minority students generally showed increases in more advanced course work that were either comparable to or smaller than those of white students.

[2]The trend data we analyzed in the previous section do not directly assess the extent of population-group differences in enrollments at competitive colleges. The IPEDS data, however, show that between 1976 and 1986—when the gap in enrollment rates between population groups grew substantially—the distribution of students across types of colleges was quite stable within each population group (Table 2.1). This implies that the widening gap in enrollment rates between population groups was apparent in private four-year colleges as well as elsewhere.

Table 3.1

TRENDS IN AVERAGE HIGH SCHOOL CREDITS FOR WHITES, BLACKS, AND HISPANICS, BY SUBJECT AREA

Population Group	Total Credits	Academic Credits	Math Credits	Science Credits	English Credits	Foreign Language Credits
1975–1978						
Black	20.3	13.4	2.3	2.0	3.9	0.7
Hispanic	21.4	13.8	2.3	2.0	3.6	1.4
Other	20.9	14.3	2.4	2.3	3.7	1.2
1982						
Black	21.3	13.8	2.6	2.1	4.1	0.8
Hispanic	21.3	13.2	2.3	1.8	3.9	0.8
White	21.7	14.7	2.7	2.3	3.9	1.2
1987						
Black	22.3	15.1	3.0	2.4	4.1	1.1
Hispanic	22.6	15.2	2.9	2.2	3.9	1.5
White	23.0	15.9	3.1	2.6	4.0	1.4
Change, 1975–1978 to 1987						
Black	1.9	1.7	0.7	0.4	0.2	0.4
Hispanic	1.2	1.4	0.6	0.2	0.3	0.1
White	2.1	1.7	0.7	0.3	0.3	0.2

SOURCE: Tuma et al. (1989).

In mathematics, for example, the proportion of students taking remedial courses dropped modestly; the proportion taking trigonometry and precalculus rose somewhat, while the proportion taking algebra and geometry rose markedly (see Table 3.2).[3] These changes were fairly similar among groups, except that the gain for Hispanics was disproportionately great at the middle level (Algebra I), while the gains for whites tended to be a bit larger than for other groups at the more advanced levels (such as precalculus). Consequently, in 1987, minority youth were still more than twice as likely as white students to take remedial courses and far less likely to take any course above the level of Algebra I. The proportion of black students taking geometry was two-thirds that of whites; in trigonometry, the proportion was half as large; and in calculus, one-third as large.[4]

[3]All changes in course work in this table, except for calculus and precalculus, were statistically significant for all three population groups (Westat, 1988, Table 34-A).

[4]The statistical significance of these differences in course work trends among population groups has not been estimated and cannot be calculated from published

Table 3.2

PERCENTAGE OF HIGH SCHOOL GRADUATES EARNING AT LEAST A SPECIFIED NUMBER OF CREDITS IN MATHEMATICS, BY POPULATION GROUP

Course[a]	White	Black	Hispanic
	1987		
Algebra I (1)	78	71	73
Algebra II (0.5)	52	32	30
Geometry (1)	65	44	40
Trigonometry (0.5)	21	11	10
Analysis/precalculus (0.5)	14	5	7
Calculus (1)	6	2	4
AP calculus (1)	3	1	3
Remedial/below grade	21	47	43
	1982		
Algebra I (1)	68	58	55
Algebra II (0.5)	39	24	21
Geometry (1)	51	29	26
Trigonometry (0.5)	14	6	6
Analysis/precalculus (0.5)	7	2	3
Calculus (1)	6	1	2
AP calculus (1)	2	0	0
Remedial/below grade	28	53	47
	1987 – 1982		
Algebra I (1)	10	13	18
Algebra II (0.5)	13	8	9
Geometry (1)	14	16	14
Trigonometry (0.5)	7	5	3
Analysis/precalculus (0.5)	7	3	4
Calculus (1)	0	1	2
AP calculus (1)	1	1	2
Remedial/below grade	–7	–7	–5

SOURCE: Westat (1988), Table 34.
NOTE: AP = advanced placement.
[a]Number of credits appears in parentheses.

Changes in science course work were similar (see Table 3.3). Change was fairly similar across groups in most cases. The participation gap between white and minority students shrank in biology, which is normally the first course in a biology-chemistry-physics sequence. Black students fell a bit further behind in chemistry. In

tabulations because of the complex sample design employed. The one test calculated for 1987 cross-sectional differences showed that the white-black and white-Hispanic differences in calculus enrollments were both significant (Westat, 1988).

Table 3.3

PERCENTAGE OF HIGH SCHOOL GRADUATES EARNING AT LEAST A SPECIFIED NUMBER OF CREDITS IN SCIENCE, BY POPULATION GROUP

Course[a]	White	Black	Hispanic
	1987		
Biology (1)	89	86	85
AP/honors biology (1)	3	2	2
Chemistry (1)	48	30	29
AP/honors chemistry (1)	4	1	2
Physics (1)	21	10	10
AP/honors physics (1)	2	(b)	1
	1982		
Biology (1)	77	71	67
AP/honors biology (1)	7	4	3
Chemistry (1)	34	21	15
AP/honors chemistry (1)	3	2	1
Physics (1)	16	7	6
AP/honors physics (1)	1	1	(b)
	1987 – 1982		
Biology (1)	12	15	18
AP/honors biology (1)	–5	–3	–2
Chemistry (1)	14	9	14
AP/honors chemistry (1)	(b)	(b)	1
Physics (1)	5	3	4
AP/honors physics (1)	1	(b)	(b)

SOURCE: Westat (1988), Table 42.

NOTE: AP = advanced placement.

[a]Number of credits appears in parentheses.

[b]Denotes less than 1 percent or a change of less than 1 percent in either direction.

1987, therefore, population-group differences remained large: Approximately half as many minority students as nonminority students took physics, and roughly two-thirds as many took chemistry.[5]

An alternative way of looking at course work is to consider the overall pattern of courses across subject areas rather than each subject separately. One approach is to look at the proportion of students who take a specified number of courses across a range of core academic subjects.

[5]These differences are statistically significant (Westat, 1988).

The proportion of students obtaining various numbers of core-subject credits has increased since 1982 among whites, blacks, and Hispanics (see Table 3.4). The gains among minorities, however, tended to be disproportionately large at the lower levels and disproportionately small at the highest level. Thus, if the criterion is set at four credits in English, three in social studies, two in science, and two in mathematics—the least stringent criterion in Table 3.4—the proportion of black and Hispanic students meeting the standard grew even more rapidly than the proportion of whites, and the three groups were essentially at parity in 1987. If the criterion is increased, even by as little as one credit each in mathematics and science, progress among minorities was comparable to or less than that among whites, and the proportion of black and Hispanic students meeting the criterion remained substantially below the proportion of whites.

Table 3.4

PERCENTAGE OF HIGH SCHOOL GRADUATES EARNING AT LEAST A SPECIFIED NUMBER OF CREDITS IN THE NEW BASICS, BY POPULATION GROUP

Courses[a]	White	Black	Hispanic
1987			
4 E, 3 SS, 3 Sc, 3 M, 0.5 C, 2 F	13	8	6
4 E, 3 SS, 3 Sc, 3 M, 0.5 C	17	12	9
4 E, 3 SS, 3 Sc, 3 M, 2 F	22	16	12
4 E, 3 SS, 3 Sc, 3 M	30	24	18
4 E, 3 SS, 2 Sc, 2 M	54	57	55
1982			
4 E, 3 SS, 3 Sc, 3 M, 0.5 C, 2 F	2	1	1
4 E, 3 SS, 3 Sc, 3 M, 0.5 C	3	1	1
4 E, 3 SS, 3 Sc, 3 M, 2 F	10	5	4
4 E, 3 SS, 3 Sc, 3 M	15	10	6
4 E, 3 SS, 2 Sc, 2 M	30	28	24
1987 – 1982			
4 E, 3 SS, 3 Sc, 3 M, 0.5 C, 2 F	11	8	5
4 E, 3 SS, 3 Sc, 3 M, 0.5 C	14	11	8
4 E, 3 SS, 3 Sc, 3 M, 2 F	12	11	8
4 E, 3 SS, 3 Sc, 3 M	15	14	12
4 E, 3 SS, 2 Sc, 2 M	23	29	32

SOURCE: Westat (1988), Table 74

NOTES: E = English, SS = social studies, Sc = science, M = mathematics, C = computer science, F = foreign languages.

[a]Number of credits appears in parentheses.

These data on course taking offer no simple explanation of the growth of the disparity between population groups in postsecondary enrollment rates since the mid-1970s. Using the coarse measure in Table 3.1—simple counts of academic courses, overall and by subject area—no changes in course work parallel the decline in the college entry rate of blacks shown by the cohorts that graduated from high school between the late 1970s and the early 1980s (Fig. 2.11). Moreover, with the exception of a few high-level courses taken by relatively few students in any population group, the gap between population groups in course work has been stable or decreasing.

However, course taking may possibly have had some modest effect on trends in college enrollments over the past several years. The narrowing gap in lower-level college preparatory course work between the classes of 1982 and 1987, though small, might have facilitated the entry of minority youth into some colleges, although probably not the most competitive. Therefore, these changes may have contributed to the small improvement in the postsecondary enrollment of blacks that has been apparent in two measures over the past few years—the entry rate of recent graduates and the enrollment rate of youths aged 18–24 (Figs. 1.1 and 2.11).

What are the implications of the stable—and, in some instances, increasing—gap between population groups in higher-level academic course work? Apart from any possible relationship to postsecondary enrollment, these differences are a disturbing indication of remaining inequities in progress through school. Moreover, the remaining gap in high-level course taking may help maintain the gap in enrollments and problems of attrition, particularly in competitive colleges. Nonetheless, these differences in advanced course work are probably of little relevance to the aggregate enrollment statistics we consider in this report because of the relatively small number of students in any population group who take such courses.

Test Scores

Trends in the average test scores of minority students are clearly inconsistent with postsecondary enrollment and entry rate trends since the mid-1970s. Data from a variety of sources agree that the disparity in achievement test scores between whites and blacks has been shrinking for quite a number of years (see, for example, Koretz, 1986; National Assessment of Educational Progress, 1988a, 1988b). The onset of these gains is not easy to pinpoint, but several data

sources suggest that they had begun at least as early as the high school classes of the mid- and late 1970s and thus coincided with the divergence of minority and white college enrollment and entry rates. The relative gains did not always reflect absolute gains by blacks; during some periods, the scores of minority students simply held steady or declined less markedly, while those of whites dropped. Nonetheless, the relative gains signify a real improvement in the competitive position of black students in comparison to whites. Moreover, in some instances, the gains of blacks, both relative to whites and in absolute terms, have been large. The evidence pertaining to Hispanics is both sparser and less clear-cut, but Hispanics as well appear to have made appreciable relative gains.

With all other things held constant, one would expect the shrinkage of the test-score gap to have helped sustain the convergence of black and white enrollment rates apparent before 1975 and to narrow the gap between Hispanics and whites.[6] Thus, trends in test scores, far from helping to explain the divergence of enrollment rates, sharpen the question: What factors enlarged the enrollment disparities among population groups in the face of a narrowing gap in academic preparation?

Still, test scores may help explain some aspects of the current enrollment patterns of minority and white students. First, despite the recent gains of minority students, the black-white and Hispanic-white gaps in test scores remain large. Regardless of past trends, this remaining gap in scores may be one factor maintaining differences among groups in enrollment rates, because parity in enrollment rates or entry rates would require the admission of minority students with markedly lower test scores, on average, than those of whites.

Second, the remaining gap in test scores may have contributed by a somewhat indirect route to the recent divergence of minority and white enrollment rates. The remaining large gap in scores between population groups may have placed a damper on continuing enrollment increases by minority students, despite the ongoing shrinkage of the test-score gap. Although the persistence of the test-score gap cannot account for the decline in black and Hispanic enrollment and entry rates shown during parts of the past 15 years, it may have contributed somewhat to the failure of minority enrollment rates to keep pace with the increases among white women that caused much of the

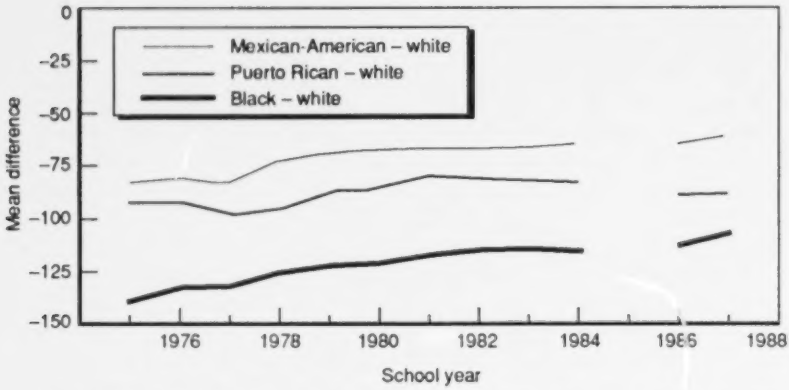
[6]Recall that available data about the enrollment of Hispanics do not extend far enough back in time to support any meaningful conclusions about Hispanic enrollments before their peak in the mid-1970s.

divergence in enrollments among population groups. We discuss this possibility in more detail in the following section.

One complication inherent in comparing test scores to college enrollments is that the relevant scores are those for the subset of students applying to or entering the types of college in question. Unfortunately, the data are generally not available in quite that form. Much of the published information about both test-score trends and the remaining gaps among population groups pertain to the entire student population (see, for example, National Assessment of Educational Progress, 1988a, 1988b). Trend data pertaining to college-bound and potentially college-bound students are available from college-admissions testing programs, the Scholastic Aptitude Test (SAT) and the American College Testing (ACT) Program tests. These data include a large proportion of students who are considering applying to four-year colleges and presumably exclude the majority of students who are clearly not college bound. These data have two important limitations, however. They presumably exclude many students intending to attend unselective colleges. Moreover, they are subject to self-selection; changes in the proportion of students choosing to take the tests can cloud interpretation of trends in scores. A final, more limited source of information is an analysis, conducted only infrequently, of the proportion of students in each population group falling into the top quartile of all students on the NAEP. We describe all of these sources of data below. Because none of these standard data sources is entirely appropriate to the question here, we have complemented the extant sources with additional tabulations of the NAEP to assess the current disparities in performance among college-bound white, black, and Hispanic students.

Students Taking the SAT. The mean difference between black and white students taking the SAT has been shrinking quite steadily for well over a decade. (Figure 3.1 shows trends in the mean difference on the mathematics scale.) Trends for Puerto Rican and Mexican-American students are more erratic, but they too show signs of gains relative to white students.[7] The gains for blacks have been substantial—approximately a fourth of a standard deviation over the 12-year period. Despite this progress, however, the gap remains large. In the 1987 school year, the average black SAT taker scored roughly at the 17th percentile on the distribution of white scores.

[7]The differences between 1984 and 1986 should be ignored because the Student Descriptive Questionnaire, which is the basis for the classification of students into population groups, was altered.



SOURCE: College Board, *College Bound Seniors* and press releases, various years.

NOTES: Data after 1985 are not comparable to earlier data because of changes in the Student Descriptive Questionnaire. Data for 1985 are not available.

Fig. 3.1—Mathematics SAT: Change in minority-white mean differences, 1975–1987 school years

The most appropriate way to compare these SAT data and college enrollment statistics is to align them with college entry rates of recent high school graduates. Because most students taking the SAT are seniors, the SAT data for any school year correspond to the entry rates for the following year.[8] Thus, the first period in the SAT data—the change between the 1975 and 1976 school years—corresponds to the last year in the 1970s that the college entry rate of black graduates was converging with that of whites (Fig. 2.11). The period of rapid SAT gains by blacks over the next five or six years corresponds roughly to the period during which the college entry rates of blacks deteriorated sharply. Thereafter, the black-white gap in scores decreased and entry rates rose, though both changes were erratic.

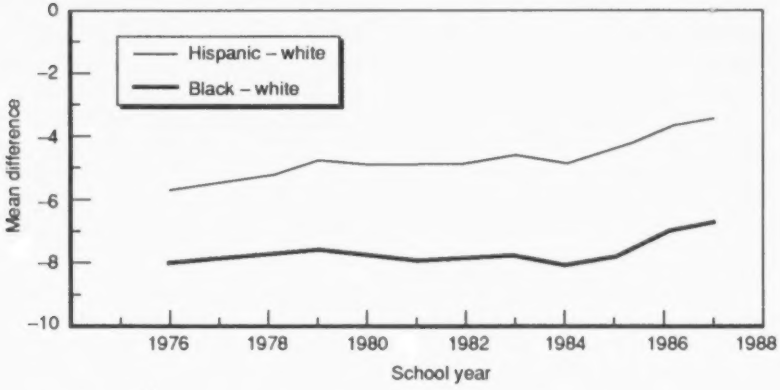
Students Taking the ACT. Data from the ACT, which represent primarily students from the Midwest, paint a somewhat different picture. They too show black and Hispanic test takers closing the gap with white students (Fig. 3.2). Unlike the SAT, however, the ACT shows black students' relative gains to be a relatively recent occur-

[8]Entry rates are based on census data from the October following departure from high school.

rence, with little change in the gap over most of the period during which the disparity in college entry rates fluctuated markedly.

Trends in the NAEP: Black Students. The NAEP has shown relative gains of black students quite consistently for many years (see Koretz, 1986; National Assessment of Educational Progress, 1988a, 1988b). Over a period of a decade or so, the cumulative reduction of average black-white differences on the NAEP was substantial. Between 1977–1978 and 1986, for example, the average difference among 17-year-olds still in school shrank by approximately a fifth in both mathematics and science (National Assessment of Educational Progress, 1988a, 1988b). As we show below, however, the gap remained large nonetheless.

The NAEP scores can be aligned only more approximately with college entry rates, but again the trends in average test scores are inconsistent with entry rates. The relative gains of blacks in terms of average scores on the NAEP were apparent as early as the cohorts born in the late 1950s but appear to have been particularly sizable for the cohorts born in the 1960s. For example, in reading, especially large gains are apparent between the cohorts born in 1961 and 1966. Thus, particularly large relative gains were made by the cohorts represented primarily in the college entry rates of 1979–1984, most of



SOURCE: American College Testing, unpublished tabulations.

Fig. 3.2—Mathematics ACT: Change in minority-white mean differences, 1976–1987 school years

which produced a widening of the entry rate gap between blacks and whites.

Another view of trends in the performance of population groups in the NAEP considers the proportion of 17-year-old students in each population group scoring in the top quartile of all students. This measure is directly relevant to the issue of college enrollment, because presumably the majority of students in the top quartile are college bound. For our purposes here, we have supplemented published analysis of this measure from the 1972–1973 and 1977–1978 assessments (National Assessment of Educational Progress, 1982) with our own analysis of 17-year-old students in the 1985–1986 assessment.

Surprisingly, the proportion of blacks reaching the top quartile has not increased, at least in mathematics and science, despite the gains shown by the black students on average. The proportion of 17-year-old black students reaching the top quartile in mathematics has been stable at 4 or 5 percent for a decade and a half (see Table 3.5). In science, the proportion reaching the top quartile has been stable at 3 percent since the mid-1970s, after dropping from a level of 6 percent in the early 1970s.[9] In contrast, Hispanics showed a clear gain in mathematics, although none in science. Though changes on this measure differ substantially from trends in average scores—in particular, in showing no relative gains by blacks—they too offer little explanation of trends in entry rates. The one comparison in which blacks showed a notable decline (in mathematics, from 1973 to 1977) corresponds roughly to a period in which the college entry rate of blacks was gaining relative to that of whites (Fig. 2.11). Between the springs of 1978 and 1986, blacks showed no real change on this measure, and the black college entry rates for the following years were also similar. In contrast, whites showed no change on this measure but a sizable increase in entry rates.

Current Scores of College-Bound Black Students on the NAEP. Questionnaires administered to students taking the NAEP permit us to approximate the college-bound population in several ways. Unfortunately, published analyses of the NAEP offer little information about trends in population-group differences among col-

[9]This decline was statistically significant; see National Assessment of Educational Progress, 1982, Table 3. That the proportion of students scoring in the top quartile in mathematics is increasing in *all* groups may seem puzzling at first glance. This would of course be impossible if the mix of population groups among 17-year-olds in school were remaining constant. It is made possible by the fact that whites, who are relatively high scoring, constitute a declining percentage of the total student population.

Table 3.5

PERCENTAGE OF 17-YEAR-OLD STUDENTS SCORING IN THE TOP QUARTILE IN MATHEMATICS AND SCIENCE, BY POPULATION GROUP

Course	White	Black	Hispanic
Mathematics			
1972–1973	29	4	6
1977–1978	29	4	7
1985–1986	30	5	11
Science			
1972–1973	28	6	7
1976–1977	29	3	8
1985–1986	30	3	7

SOURCES: 1985–1986 estimates from RAND tabulations; earlier estimates from NAEP (1982).

lege-bound students, and appropriate time-series analyses of the NAEP are beyond the scope of this report. We have, however, undertaken analyses of 11th-grade students in a recent (1986) NAEP to obtain estimates of current population-group disparities in achievement among college-bound students. These estimates, unlike those obtained from college-admissions test scores, are not biased by self-selection and permit us to compare group differences in the college-bound population to group differences in the student population as a whole.

These analyses used several criteria to delineate the potentially college-bound population. Students' self-reports were used to identify those in academic programs, those who expected attendance at college (either two- or four-year) to be their primary use of time the year after graduation, and those with high grade point averages (GPAs). In addition, students were categorized in terms of their test scores. The analyses included five areas in mathematics and two in science, ranging from basic skills to subjects normally included in college-preparatory programs.[10]

For a standard of comparison, we calculated black-white differences in the student population as a whole. In all instances, these differences were large, though the magnitude varied from one subject area to another. The smallest differences appeared in low-level num-

[10]For simplicity, we have omitted from the discussion below some of the seven content areas, but all are consistent with the conclusions we present.

bers and operations (essentially, basic mathematical skills) and algebra (see Table 3.6). (Recall that most students take Algebra I, and that the proportions of whites and blacks taking it are essentially equal.) In both those subjects, the median black student would have scored at approximately the 25th percentile among whites. That is, some three-fourths of white students scored above the median black student in these subjects. The largest discrepancy was in measurement, an area that cuts across several specific courses; in that area, the median black student would have scored only at approximately the 11th percentile among whites. Black-white differences in biology and chemistry were at the large end of this range, even though essentially equal proportions of black and white students take first-year biology. Initial results from the 1988 NAEP suggest that the black-white gap has shrunk more rapidly in reading than in mathematics or science, but the difference remains considerable; the average 17-year-old black student would have scored between the 25th and 30th percentile on the white distribution in reading.[11] The black-white differences in mathematics and science tended to be slightly larger among males than females, but these gender differences were not statistically significant.

Table 3.6

TEST SCORES OF BLACK AND WHITE STUDENTS: OVERALL, AND STUDENTS EXPECTING TO ATTEND FOUR-YEAR COLLEGES

(White percentile matching score of median black student, by sex and content area, 1986 NAEP)

	Male Students		Female Students	
Content Area	All 11th-Grade Students	Expecting to Attend 4-Year College	All 11th-Grade Students	Expecting to Attend 4-Year College
Measurement	11	8	10	8
Low-level numbers and operations	26	21	25	21
Algebra	25	18	21	17
Life sciences	11	8	10	8
Chemistry	15	10	13	11

SOURCE: RAND tabulations of the 1986 NAEP.

NOTE: All values are means of five plausible values and exclude out-of-grade students.

[11]Don Rock, Educational Testing Service, personal communication, January 11, 1990.

That the black-white difference in test scores appears to be as large or perhaps even larger among college-bound students is particularly troubling. For example, among students expecting to attend a four-year college the year after graduation, the estimated black-white difference is larger in every subject than the corresponding difference in the 11th-grade student population as a whole, although the increase in the gap is not in most instances statistically significant (Table 3.6).[12] The difference is particularly large in the case of males. In algebra, for example, the median college-bound black male student would score at the 18th percentile on the distribution of white male college-bound students. In other words, more than 80 percent of college-bound white males scored above the black median. In contrast, in the overall student population, the median black student scores at the 25th percentile on the white distribution. The black-white difference among students in the academic track is essentially identical to that among students expecting to attend a four-year college, and the gap among students with high grades (mostly A's, or approximately half A's and half B's) fell between that group and the 11th-grade population as a whole.

The consistency of the black-white gap in these various potentially college-bound groups is striking, given that the measures categorize students quite differently. The academic track is the largest group, comprising an estimated 52 percent of all students. Some 45 percent of all students stated that they expected to attend a four-year college after graduation, and 27 percent of all students placed themselves in the high-GPA group. Moreover, the overlap between groups is only moderate. For example, a third of academic-track students do not identify themselves as expecting to attend a four-year college, and more than a fifth of those expecting to attend a four-year school are not in the academic track. Fewer than half the students expecting to attend a four-year college are in the high-grades group, and 28 percent of the high-grades group do not state that they expect to attend a four-year college. Yet all these diverse categories of relatively high-achieving students show black-white disparities in scores that are

[12]The difference in the black-white gap between the group expecting to attend four-year colleges and all other students is statistically significant (or marginally so, depending upon assumptions about design effects) in algebra when males and females are pooled. The large difference among males fails to reach statistical significance, but given its magnitude and several technical factors (such as small subgroup sample sizes and the error with which students' scores in particular content areas are estimated), the statistical insignificance likely represents only a lack of statistical power for these types of comparisons in the NAEP.

very similar and are at least as great as those in the student population as a whole.

The finding that the black-white gap in scores is at least as large among potentially college-bound groups is particularly discouraging because the college-bound groups are a smaller, and presumably more selective, subset of black students than of whites (see Table 3.7). This difference in selectivity is moderate in the case of the academic track and with students expecting to attend four-year colleges but striking in the case of the high-grades group: Only 15 percent of black 11th-grade students, compared to 30 percent of whites, classify themselves as having at least half A's. Given these differences, these groups are likely more selective in the case of blacks, and one might expect the black-white difference in scores to be attenuated in those groups as a result. Not a single instance occurred, however, in which that was the case.

The NAEP also permits us to examine the performance of students who expect to attend two-year colleges after graduation. On average, these students are markedly different than those who expect to attend four-year schools. Not surprisingly, students expecting to attend four-year colleges are, on average, high achievers, while those expecting to attend two-year schools score below average. The average student aiming for a four-year college scored near the 70th percentile in the overall student population, while the average student aiming for a

Table 3.7

PROPORTION OF 11TH-GRADE STUDENTS IN COLLEGE-BOUND CATEGORIES, BY POPULATION GROUP, 1986 NAEP

Criterion for Selecting Students	Percentage of Whites	Percentage of Blacks	Percentage of Hispanics
Academic program	54	45	38
Primary use of time after high school: 4-year college	47	38	28
High grades	30	15	16

SOURCE: RAND tabulations of the 1986 NAEP.

NOTE: All classifications are based on student self-reports. Omitted responses are not imputed. Estimates are based on the random subset of students tested in mathematics. Out-of-grade students are omitted.

two-year college was somewhat below average, falling roughly at the 40th percentile of the overall distribution of scores.[13]

Despite these large differences in average achievement level, black-white differences in scores among students aiming for two-year colleges are very similar to those among students aiming for four-year schools and closely parallel those in the student population as a whole (see Table 3.8). The similarities even extend to specific content areas within mathematics. The ethnic disparity is again largest in measurement and smallest in low-level numbers and operations.

A final approach to approximating the college-bound population is to examine the proportion of students exceeding various percentiles on the distribution of test scores. We have extended the analysis of the top quartile, reported above, to the top half and the top decile (10 percent) of all students in 1986. Comparing these three increasingly

Table 3.8

TEST SCORES OF BLACK AND WHITE STUDENTS: OVERALL, AND STUDENTS EXPECTING TO ATTEND TWO-YEAR COLLEGES

(White percentile matching score of median black student, by sex and content area, 1986 NAEP)

Content Area	All 11th-Grade Students	Students Expecting to Attend 2-Year College
Measurement	11	9
Low-level numbers and operations	25	27
Algebra	23	23
Life sciences	11	11
Chemistry	14	12

SOURCE: RAND tabulations of the 1986 NAEP.

NOTE: All values are means of five plausible values and exclude out-of-grade students.

[13]These estimates reflect the mean scores within post–high school plan groups, compared to the overall standard deviation. In contrast to the comparison of the estimates of ethnic differences, all of which reflect all five "plausible values" (alternative estimates) provided by the NAEP, these are based only on the first plausible values.

high–scoring groups suggests the mix of population groups in the potential applicant pools of colleges that vary in selectivity.[14]

This analysis shows that black students are progressively more seriously underrepresented as one moves to more selective groups (see Table 3.9). If a relatively uncompetitive four-year college were to look among the top half of all students for its applicants, it would find approximately 20–30 percent of black students falling in that range depending on the subject area, instead of the 50 percent who would be in this range if no black-white difference in scores existed. A school looking among students in the top quartile would find an even greater

Table 3.9

PERCENTAGE OF 11TH-GRADE STUDENTS ABOVE SPECIFIED ACHIEVEMENT PERCENTILES IN MATHEMATICS AND SCIENCE, BY POPULATION GROUP, IN THE 1986 NAEP

Group	Low-Level Numbers and Operations	Algebra	Measurement	Biology	Chemistry
Percentage scoring in top half					
White	55	56	58	58	57
Black	29	26	16	15	19
Hispanic	29	29	25	22	25
Percentage scoring in top quartile					
White	28	29	29	30	29
Black	9	8	4	4	6
Hispanic	11	10	9	7	9
Percentage scoring in top 10 percent					
White	11	11	12	12	12
Black	2	2	1	1	2
Hispanic	4	3	2	2	2

SOURCE: RAND tabulations of the 1986 NAEP.

[14]This analysis is based on students in grade 11 regardless of age. Grade-based analysis seems most appropriate because students who are together in the same grade are generally those who will be competing against each other for admission to college. The trend analysis of the top quartile reported above was based on all 17-year-olds regardless of grades because the earlier analyses by NAEP had been conducted that way. The differences between the two approaches are not large.

underrepresentation—only 4–9 percent of black students, instead of 25 percent. The underrepresentation is most extreme in the top decile, into which only 1 or 2 percent of black students fall.[15]

Scores of College-Bound Hispanic Students on the NAEP. The NAEP shows that the average Hispanic student scores well below the white average but somewhat higher than the black average. It also shows Hispanic students to be gaining relative to white students over the long term (NAEP, 1988a, 1988b). In both respects, these findings are consistent with other national data (Koretz, 1986), such as the ACT and SAT data displayed above.

Despite the relative gains of Hispanics, the median Hispanic 11th-grade student still scored poorly relative to the distribution of white students in 1986. For example, the median Hispanic student scored at the 19th percentile on the white distribution in measurement and at the 20th percentile in chemistry (see Table 3.10).

The Hispanic-white gap in test scores was very similar among college-bound students. Students expecting to attend four-year colleges showed virtually identical differences (Table 3.10), as did students in the academic track. Students reporting high GPAs showed a slightly smaller gap, but the difference was not statistically significant. The gap also tended to be somewhat smaller among students expecting to attend two-year colleges (Table 3.10).[16] Even in that group, however, the median Hispanic student never exceeded the 31st percentile on the white distribution.

Hispanics are badly underrepresented in the top reaches of the achievement distribution, but considerably less so than blacks (Table 3.9). In the top quartile, the differences varied considerably from one subject to another but were large in some instances. In the area of measurement, for example, 4 percent of blacks and 9 percent of Hispanics scored in the top quartile. In the top decile, the representation of Hispanic students was often proportionately double that of

[15]Although the progressively greater underrepresentation of black students in the higher percentiles is striking, it is a predictable consequence of the large mean differences in performance between black and white students. As long as the scores in any two groups form nearly normal distributions and have reasonably similar variances, a mean difference between the groups will produce this pattern. This finding illustrates why information about differences between averages can be misleading when atypically high– or atypically low–scoring groups are at issue.

The estimates here for the top decile have large margins of error because of the small number of tested black students who fall into that range.

[16]The difference in the Hispanic-white gap between the two-year–college group and all other students was statistically significant in some subject areas: algebra, a mathematics composite score (not shown), biology, and chemistry.

Table 3.10

TEST SCORES OF HISPANIC AND WHITE STUDENTS: OVERALL, AND STUDENTS EXPECTING TO ATTEND COLLEGE

(White percentile matching score of median Hispanic student, by sex and content area, 1986 NAEP)

Content Area	All 11th-Grade Students	Students Expecting to Attend 4-Year Colleges	Students Expecting to Attend 2-Year Colleges
Measurement	19	19	23
Low-level numbers and operations	25	27	31
Algebra	25	22	31
Life Sciences	17	14	21
Chemistry	20	20	23

SOURCE: RAND tabulations of the 1986 NAEP.

NOTE: All values are means of five plausible values and exclude out-of-grade students.

blacks but was still only 20–40 percent what one would expect solely on the basis of the number of Hispanic students.

PARTICIPATION IN THE MILITARY

Perhaps because the military has successfully redirected its recruitment in recent years to make high school graduates a much higher percentage of new recruits, some observers have expressed concern that the services may increasingly be "creaming" able and potentially college-bound black youth. However, changes in military enlistments apparently have not had a significant negative effect on the postsecondary enrollment rate of black youth over the past decade.

Sorting out the impact of military participation on college enrollment statistics is complex, for trends in military participation can affect postsecondary enrollment trends in several ways. First, the extent to which the military competes with colleges for potential entrants varies with the number and qualifications of new "accessions" (new entrants into the military). Such changes will show up in several enrollment statistics but are likely to have their greatest short-term impact on the entry rates of recent high school graduates. Second, the military can have a substantial impact on later enroll-

ments, for example, if the reenlistment rate of potentially college-bound youth changes, or if changes in veterans' benefits either encourage or discourage subsequent postsecondary schooling.

Moreover, apart from these real effects on college enrollment, participation in the military can also have an artifactual effect on common enrollment-rate statistics because the CPS does not count individuals in the military.[17] Consequently, changes in enlistment rates can alter college enrollment rates, even if the change in military enlistments affects only individuals—for example, those who have not graduated from high school or who have low test scores—unlikely to enroll in college regardless. For example, if the number of black high school nongraduates enlisting in the military were to increase, those new recruits would disappear from the CPS estimates of black youth for every October during their term of service. This would artificially inflate the apparent postsecondary enrollment rate by decreasing the estimated population to which counts of students would be compared.

Recent changes in military enlistments have been dramatic in some respects, but the numbers of black youth involved in these changes are small enough that the impact on enrollment rate statistics has been minor. The services have largely succeeded in their goal of increasing the proportion of new accessions who are high school graduates (including GEDs), and the impact on the characteristics of black active-duty personnel has been dramatic. In 1976, for example, 21 percent of all black male active-duty personnel aged 18–24, and 29 percent of those aged 18–19, were high school nongraduates. Ten years later, only 2 percent of the 18–24 age group and 3 percent of the 18–19 age group were nongraduates.[18] The *number* of nongraduates on active duty, however, was very small relative to the total population even before that change. Thus, according to one estimate, the number of black male nongraduates aged 18–24 on active duty dropped by roughly 34,000 between 1980 and 1986.[19] During that same period, the number of black male *graduates* in active service dropped even less—by some 19,000. By way of comparison, the total

[17]To be more precise, some military personnel are counted in the CPS in some months. Personnel living off base are counted in the March CPS, whose data are often used in estimates of educational attainment. No military personnel are counted in the October CPS, however, which is the source of current enrollment statistics and the basis of all CPS enrollment statistics we use here (Rosalind Bruno, Bureau of the Census, personal communication, August 1988).

[18]Defense Manpower Data Center (DMDC), unpublished tabulations.

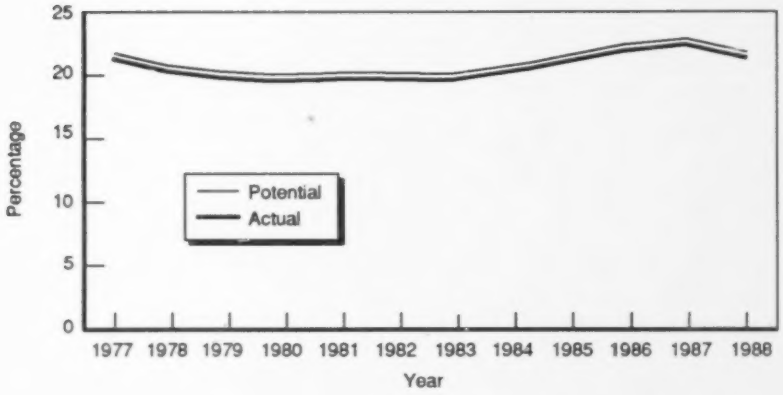
[19]DMDC, unpublished tabulations.

(civilian and military) population of black males aged 18–24 was estimated to be approximately 1,860,000 in 1986.[20]

These numerical changes in military participation are too small to have had appreciable effects on trends in postsecondary enrollments. If the military participation of young blacks had been constant, black postsecondary enrollment *counts* would have followed very much the same trend that they have over the past decade. We can assume that most high school nongraduates in the military would not have been able to attend college if in civilian life. Therefore, what is important for estimates of enrollment counts is changes in the number of black high school graduates aged 18–24 in the military. Between 1976 and 1978, the proportion of black high school graduates of this age who were in the military ranged from a low of 6.2 percent (in 1976) to a high of 7.6 percent (in 1979 and 1980). By 1988, it had dropped to 6.4 percent. If the percentage had held constant at the 1976 level of 6.2 percent, the number of black high school graduates not in the military would have been slightly higher in all subsequent years. The increase, however, would never have reached 40,000 and would have been 22,000 or less in all but three years. Even if all these individuals had attended college, they would have affected college enrollment counts little, because enrollment counts were far larger—in the range of 700,000–800,000—during that period. If the additional civilian high school graduates had attended college at the same rate as other black civilian high school graduates, college enrollment counts would never have been changed by more than 11,000.

Enrollment *rate* statistics have also been affected only slightly by military recruitment over the past decade. As we noted above, enrollment rates are also affected by the recruitment of youth not bound for college, because their recruitment removes them from the population base used to calculate enrollment rates. Once again, however, the small numbers involved produce only minor changes in the statistics that have been commonly used. For example, Fig. 3.3 shows the actual and potential college enrollment rates of blacks aged 18–24. The actual rate is the CPS estimate noted in the previous section. The potential rate is an estimate of the enrollment rate if *no* black

[20]This estimate is the sum of the CPS estimate for 1986 and unpublished DMDC estimates of active-duty military personnel.



SOURCES: Current Population Survey; Bureau of the Census, *School Enrollment: Social and Economic Characteristics of Students*, Series P-20, various years; Defense Manpower Data Center, unpublished tabulations.

NOTE: All values except 1988 are three-year weighted moving averages.

Fig. 3.3—Actual and potential college enrollment rates for blacks aged 18–24

youth in that age range were in active service.[21] The two trend lines are nearly identical.[22]

A recent analysis of the military's impact on postsecondary enrollments by the American Council on Education (Hexter and El-Khawas, 1988) also concluded that military recruitment has not been depressing the college enrollment of blacks in recent years. Hexter and El-Khawas concluded that although in recent years the military has been claiming an increasing share of high school graduates in the

[21]Specifically, the potential rate assumes that no nongraduates in the military would have been enrolled in college if they had been in civilian life, and that the enrollment rate of graduates would be identical to the enrollment rate of graduates who actually were in the civilian population. The numbers of additional black high school graduates entering into the potential rate is so small that reasonable alternative assumptions about their potential enrollment rate in college would not alter the conclusions we reach here.

[22]In contrast, the effect of military participation was considerable in earlier years. For example, the exclusion of military personnel from the CPS accounts for much of the rise in male college enrollment rates during part of the Vietnam War (Hauser, 1986; Bureau of the Census, 1978).

population as a whole, the reverse has been true among blacks. Among blacks, they maintained, the proportion of high school graduates entering the military declined, as did the proportion entering college. In other words, neither military recruitment of high school graduates nor college enrollment kept pace with the increasing high school graduation rate among blacks.

Moreover, Hexter and El-Khawas found that the military actually serves as a source of postsecondary enrollments. A considerable number of active personnel take college courses or complete degrees while in the military, and many use military service and the new Montgomery GI Bill as a path into college. Hexter and El-Khawas did not provide estimates of the number of black or other minority personnel who make use of veterans' benefits to enter college, but their analysis makes clear that a comprehensive assessment of the military's impact on minority youth must consider education during and after service, as well as the impact on initial college entry rates of high school graduates.

INCOME

The large gap between the income distributions of blacks and Hispanics and that of whites leads to two questions about the impact of income on minority youth's postsecondary enrollment. First, to what degree can income explain *cross-sectional* disparities among population groups in college enrollment? Second, might changes in income have contributed to group differences in enrollment *trends*—in particular, to the widening gap between whites and minorities?

Income is clearly associated with cross-sectional differences among population groups in college enrollment, but whether income *causes* those differences is unclear. When income differences are controlled, the enrollment rates of minority youth generally appear more similar to those of whites. Chaikind (1987), for example, found that black students in the early 1980s had higher postsecondary enrollment rates than did white students with similar family incomes and test scores. Hauser (1987a) concluded that income accounts for some of the black-white difference in college entry rates of recent high school graduates. However, Hauser also found that the relationship between income and enrollment was unstable over time. He found that during part of the 1970s, black high school graduates were more likely to enter college after graduation than were white graduates with the same income, even without taking test scores into account. By the

mid-1980s, however, the entry rate for blacks had fallen so far relative to that for whites that income differences could not fully account for the gap; blacks had become less likely than whites with similar incomes to attend college. Using the same data used by Chaikind but analyzing it somewhat differently, Lee (1985) found that black high school graduates were more likely than whites of low socioeconomic status to be enrolled in college two years after graduation; Hispanics were roughly as likely as these whites to be enrolled. These studies, however, do *not* necessarily indicate that income *causes* the share of the enrollment gap between population groups that is associated with income differences. To some degree, differences in income and postsecondary enrollment could both be caused by still other factors, such as differences in parental education or aspirations.

Research about the effects of income changes on enrollment *trends* is more limited but clearer: Income changes appear not to explain the divergence between whites and blacks, at least if college entry rates are indicative.[23] Hauser (1987a) analyzed college entry rates from 1969 to 1984 and found that trends for blacks were similar within almost all income groups and thus could not be explained by income changes. More important, he compared the observed white-black difference in entry rates to one that had been adjusted to take out the effects of changes in income, region, and metropolitan location. The observed and adjusted entry rates differed in level but followed nearly identical trends. An important caveat, however, is that these findings may not generalize to the full range of enrollment measures we consider above.

ASPIRATIONS AND PLANS

The divergence of college entry and enrollment rates among population groups might represent differential trends in educational aspirations. One might hypothesize, for example, that the percentage of white females aspiring to attend college might be rising faster than the percentage of black women, and that the divergence in enrollments might accordingly be a reflection of diverging preferences.

National survey data, however, suggest that aspirations and plans cannot account for the divergence of enrollments. In analyses of the annual Monitoring the Future Survey, Hauser (1987b) and Hauser

[23]Corresponding analyses for Hispanics are unavailable.

and Anderson (1989) found that from the mid-1970s to mid-1980s, the plans and aspirations of black and white youth followed similar paths. Neither the plans nor aspirations to complete two-year college or to attend technical or vocational schools changed appreciably. Plans and aspirations to join the military increased a bit, and that increase was slightly greater among blacks. (As noted above, however, this did not translate into relevant changes in military enlistments.) Plans and aspirations to complete four-year college increased, and this increase was smaller among blacks. The black-white difference, however, was small.

GED DEGREES

Some observers have questioned whether trends in the enrollment of minority high school graduates are distorted by change in the proportion of graduates who are not graduates of regular high school programs but have earned equivalency certificates by passing the GED test. This concern reflects the fact that the CPS data used to estimate enrollment rates count most individuals with GEDs as graduates and do not distinguish them from graduates of regular programs.

Although available data cannot address this question directly, they do suggest that any bias of this sort would be minor. Minorities are somewhat overrepresented among GED examinees.[24] No data as yet exist that indicate how the mix of population groups in the examinee group has changed over time, however, and only such a change would bias the trends analyzed in the previous section.[25] Moreover, the number of GEDs is so small relative to the number of regular high school graduates that even moderate changes in the mix of population groups in the examinee group would have little effect on overall enrollment statistics. In 1986, roughly 220,000 GED certificates were awarded to individuals aged 18–24; in contrast, some 2.6 million

[24]A 1980 survey of a national sample of GED examinees found that blacks and other minorities constituted some 22 percent of the examinee group, compared to 13 percent of the U.S. population over the age of 16 (Malizio and Whitney, 1981). These figures overstate the overrepresentation of minorities, however. The population of GED examinees is generally young, with a median age of 21 and a mean of 25, and blacks and Hispanics constitute a larger proportion of younger age groups than of the proportion as a whole.

[25]The American Council of Education, which operates the GED testing program, will be fielding a new national survey shortly that should offer information of this sort.

people graduated from regular programs (American Council on Education, 1986; National Center for Education Statistics, 1988a).[26]

[26]The National Center for Education Statistics estimate of graduates of regular programs in 1985–1986 was 2,642,000, but a relatively small proportion of these graduates were actually GED recipients.

IV. CONCLUSIONS AND IMPLICATIONS

What can we conclude from the varying measures arrayed in the previous sections about trends in the postsecondary enrollment of minority youth and their possible causes? What are the implications of our findings for both research and policy?

SUMMARIZING ENROLLMENT DATA

The recent debate about minority enrollment in postsecondary education has focused on three basic questions:

- Has the disparity in postsecondary enrollment between white and minority individuals grown in recent years?
- Has the enrollment of minorities—in particular, blacks—fallen in absolute terms over the same period?
- Have enrollment trends been particularly negative for black males?

In most cases, one can find consistent answers to these questions in the disparate enrollment measures we described earlier, but sometimes only by posing these questions in more specific forms. When we speak of enrollments, do we mean simple *counts* of those enrolled, or enrollment *rates*—the proportion of some group, such as youth aged 18–24, who are enrolled? Is the question the enrollment of individuals of all ages, or only of individuals in the traditional college-age population (ages 18–24)? In estimating enrollment rates, are all individuals of the appropriate age counted in the base (the denominator of the proportion), or only high school graduates? Once these additional details are specified, many answers about enrollment trends become clear.

Is the Gap in Enrollment between Whites and Minorities Growing?

One conclusion is unambiguous: The gap in postsecondary enrollments between blacks and whites has been widening since the mid-1970s. This is apparent in both of the two most commonly cited mea-

sures: enrollment counts across all ages (from the IPEDS data) and enrollment rates estimated from the CPS. Moreover, it is true of both overall enrollment rates (those calculated for the age group as a whole) and for enrollment rates calculated only for high school graduates. It is true regardless of the age group for which enrollment rates are estimated. Finally, one also reaches a similar conclusion if one looks at a different measure, the college entry rate of recent high school graduates, which also shows a much larger white-black difference now than it did in the mid-1970s.

The divergence between blacks and whites in total enrollment *counts* has been modest. Between 1976 and 1988, total white college enrollments increased some 13 percent, while black enrollments increased approximately 9 percent. In contrast, the divergence of black and white enrollment *rates* has been striking. For example, in 1976, the proportion of high school graduates aged 18–24 enrolled in college was roughly the same for both blacks and whites—approximately one-third. By 1987, this enrollment rate had dropped to 29 percent for blacks but risen to 39 percent for whites.

The comparable answer for Hispanic enrollments is more complex and depends on the measure used. The gap in enrollment rates between whites and Hispanics in the traditional college-age population (ages 18–24) has been growing. In terms of enrollment counts, however, the gap between whites and Hispanics has not grown. On the contrary, when students of all ages are considered (as in the IPEDS data), the number of Hispanics enrolled in college has been rising considerably faster over the past 12 years, in proportional terms, than the number of whites. The reason for the discrepancy between these measures is the Hispanic population's very rapid increase in size.

Has the Enrollment of Minorities Been Declining?

Much of the increased gap between whites and minorities on some enrollment measures is attributable to an increase among whites rather than a decrease among minorities (see, for example, Figs. 1.1 and 2.8). Still, by some measures, the enrollment of minority groups has declined in absolute terms as well as in comparison to whites. Whether an absolute decline is apparent depends on the group in question and the measure in use. For the most part, these discrepancies stem from the different measures' asking different questions about minority enrollment.

Total Enrollment Counts. As noted above, when we consider all ages, the enrollment count for blacks has risen modestly since 1976, and the count for Hispanics has risen sharply. Similar patterns are apparent in the traditional college-age population.

Enrollment Rates in the Traditional College-Age Population. Enrollment in this age group has generally been evaluated by reference to enrollment *rates*, which can be calculated in two ways: the proportion of the age group enrolled in college (the overall enrollment rate), or the proportion of high school graduates. These two rates show somewhat different trends for blacks, although not for Hispanics.

The overall enrollment rate for blacks in the 18–24 age group has been fairly stagnant since the mid-1970s. The increases that characterized the period before 1975 have clearly stopped, but no sizable or lasting deterioration has occurred since then. A decline in the late 1970s was offset by an increase in the early 1980s, but both were small, and the enrollment rate has ranged, in round numbers, from 20 to 22 percent since 1975. The enrollment rate over the past few years has been at the high end of that range, matching the levels reached during a short-lived peak in the mid-1970s (Fig. 1.1). In the case of this measure, the gap between whites and blacks widened because the enrollment rates of whites continued to rise markedly, while those of blacks stagnated.

In contrast, the enrollment rate of black high school graduates in the 18–24 age range *is* lower now than it was in the mid-1970s. In 1976, the estimated enrollment rate of black high school graduates was nearly 33 percent; in 1987, some 29 percent. The enrollment rate of graduates followed a trend similar to that shown by the overall enrollment rate: a drop starting in the mid-1970s, followed by an upturn in recent years. In the graduates' case, however, the decline was more substantial, and the recent upturn has been insufficient so far to overcome it (Fig. 2.8). College entry rates of recent black graduates have generally followed fairly similar trends.

Interpreting the enrollment rate trends of black high school graduates hinges in part on the short-lived enrollment peak of the mid-1970s (Fig. 2.8). The meaning of that brief peak remains intensely controversial; some observers see it as a temporary anomaly; others, as the appropriate baseline for judging subsequent trends. This disagreement is sustained by the lack of any widely accepted explanation of the causes of the enrollment peak, which was evident to varying degrees among whites and Hispanics as well. If one considers the peak years an anomaly, one could characterize the enrollment rate of

black high school graduates since then as fairly stagnant, and the rate in 1987 was similar to that of the late 1970s.

The reason for the discrepancy in trends between the overall black enrollment rate and the enrollment rate for high school graduates is simple. The high school dropout rate of young blacks (male and female) has decreased steadily for almost all of the past 20 years, but college enrollments stopped mirroring this improvement after the mid-1970s.

Which measure is correct—the enrollment rate for all black youth, which is as high now as it has ever been, or that for high school graduates, which has resumed rising but remains appreciably lower than in the mid-1970s? Unfortunately, there is no simple answer—both are important. The enrollment rate for high school graduates comes closer to answering the question, Of persons who might go to college, how many do? As such, it is a logical focus for analyses of postsecondary institutional policies' effects. It has the advantage of removing from consideration the pool of dropouts, most of whom will not go to college regardless of likely changes in institutional policies. At the same time, this measure has some drawbacks. It has the perverse effect of making groups with higher dropout rates, or with relatively negative trends in dropout rates, look better (all other things being equal). This confounds comparisons between black males and females, for example, and even more, comparisons between blacks and Hispanics (because of Hispanics' much higher high school dropout rate). Moreover, the enrollment rate in the entire age group is more germane for an assessment of the population groups' educational status as a whole, particularly when the focus is on policies that go beyond those of postsecondary institutions.

Conclusions about the enrollment rates of Hispanics in the 18–24 age range are less dependent on the measure chosen. The widening gap between whites and Hispanics is primarily a function of the increase among whites. The overall enrollment rate has been quite stable since the late 1970s, although estimated rates have been consistently a few points below the short-lived peak of the mid-1970s (Fig. 1.1). Enrollment rates for Hispanic high school graduates (Fig. 2.8) have shown a fairly similar trend, because the Hispanic dropout rate has not shown the consistent downward trends shown by blacks. In terms of the enrollment rates' *level*, however, the distinction between the two rates is far more important for Hispanics than for whites or blacks, because the Hispanic high school dropout rate is so high (roughly double that for blacks, by one measure). Thus, the college enrollment rate of all young Hispanics is well below that of

blacks, but so is the high school completion rate, so the enrollment rate of graduates is quite similar in the two groups.

The Enrollment Rate of Older Students. The enrollment rate of blacks over age 24, in contrast to that of black youth, *does* appear to have dropped since the mid-1970s. The decline in the enrollment rate seems to have been modest, and in any case, the enrollment rate in older age groups is relatively low. However, the number of individuals affected by this trend is appreciable.

Reconciling Enrollment Rates and Enrollment Counts

Regardless of whether one focuses on the divergence between minorities and whites or on absolute changes in minority enrollments, enrollment rates and counts point to markedly different conclusions. The key to reconciling these differences is changes in the size of the population groups. For example, the relatively stable count of whites aged 18–24 enrolled in college in the 1980s translates into a substantial increase in the enrollment rate because of a sizable decline in the white population in that age group. In contrast, the population of blacks in the 18–24 age group grew through the late 1970s, then stabilized, and finally began dropping modestly during the past several years. These changes are roughly the mirror image of the small fluctuations in the overall black enrollment rate. The pattern among Hispanics in the 18–24 age group is entirely different from both blacks and whites. Enrollment *counts* have been rising rapidly for the past decade, but the increase in the Hispanic population's size has been as rapid and has offset those enrollment gains when rates are calculated.

Are Enrollment Trends Particularly Negative for Black Males?

This question is important not only because it has dominated recent debate, but also because it is the basis for many hypothesized explanations of the enrollment trends. In some respects, enrollment trends *have* been particularly negative in recent years for black males. Yet across an array of measures, this pattern is both less clear-cut and less extreme than many observers apparently believe. Moreover, some of the exceptions to this generalization about black males appear essential for explaining enrollment trends.

The Total Enrollment of Black Males. More than any other, the single statistic that has focused public attention on the enrollment of black males is the IPEDS estimate that the total number of black males enrolled in college, across all ages, declined some six percentage points between 1976 and 1988. During the same period, the number of black females enrolled in college grew substantially—by roughly 22 percent.

Unfortunately, this is one of the few important instances in which different measures under consideration here could not be fully reconciled. The CPS data have not been tabulated in precisely the same form. Somewhat similar CPS tabulations, however, confirm that the enrollment count of black women has shown a more favorable trend than that of black men, but the CPS data suggest that the total post-secondary enrollment of black males during that period has been stable rather than declining.

Even the IPEDS estimates for black males, however, take on a somewhat less negative cast when they are compared to estimates for whites. The enrollment of white males also fell—albeit only slightly—and the sex difference between black males and females was even more striking among whites. From 1976 to 1978, the enrollment of white males fell some two percentage points, while the enrollment of white women increased by 31 percentage points.

The Enrollment Rate of Black Males. The widespread view that trends are particularly negative among black males appears even less accurate when we consider enrollment *rates* rather than the number of individuals enrolled.

In the 18–24 age group—the traditional basis for calculating enrollment rates—the trend among black males since the mid-1970s has not been exceptional. Although differing in the details, enrollment rate trends have been quite similar since the mid-1970s for black males, black females, and white males. The rate has fluctuated a moderate amount in all three groups, but in all three it is now at a level similar to that of the mid-1970s. The exceptional group is white females: their enrollment rate has continued to rise almost without interruption.

Trends took a somewhat different form in the 25–34 age group (which has constituted approximately a fourth of all college enrollments in recent years). The enrollment rate of black males in this older age group dropped after the mid-1970s, while the enrollment of

black females was stable. But again black males were not unique. The enrollment rate of older white males also fell.[1]

Which Gender Is Responsible for the Divergence between Blacks and Whites?

In light of the patterns just described, to attribute the growing disparity in enrollment trends between blacks and whites to the trends among black men is clearly inaccurate. On the contrary, the divergence between blacks and whites is attributable at least as much (and in some age groups more) to the trends shown by women. This is most clear-cut in the case of the enrollment rates of youth in the traditional college-age population. In that age group, the growing gap between blacks and whites is attributable primarily to black women's not mirroring the steady increases shown by white women. This conclusion is less clear-cut in the case of some older students, but in no group does evidence exist that the growing disparity between whites and blacks is primarily attributable to black males.

POSSIBLE CAUSES OF THE ENROLLMENT TRENDS

Why, then, has the enrollment rate of blacks and Hispanics stagnated, failing to keep pace with the increase shown by whites since the mid-1970s? Why has the college enrollment rate of blacks failed to mirror improvements in the high school dropout rate since that time? Both the specific patterns shown by the enrollment data and information on correlates of the enrollment trends offer suggestions but also leave many questions unanswered.

Inferences from Patterns in the Enrollment Data

Examined in detail, the enrollment data suggest that the particular experiences of black males can explain only the smaller part of the growing disparity in enrollments between blacks and whites. Indeed, the data suggest that a parsimonious explanation might not focus on the unique experiences of black males at all. An explanation that could account for three trends—a group difference favoring whites, a

[1]As we noted in an earlier section, estimates of trends in the older age group are subject to a large margin of error because of small sample sizes and are not statistically significant.

sex difference favoring women, and a uniquely positive trend among white women—would be fully sufficient to produce all the trends we noted above. This does not imply that the unique experiences of young black males played no part; conceivably, for example, some such factors might have contributed to the stagnation of their enrollment rates, while other factors produced the similar stasis among young black women. The data exhibit no patterns, however, that could only be explained by reference to the unique experiences of black males. And the data show unambiguously that factors affecting women account for the larger part of the divergence between blacks and whites.

The enrollment data also indicate that to the extent that the experiences of black males underlie recent trends, the experiences of men over age 24, not those in the traditional college-attending age group, are most germane. To be more precise, the experiences that influence college enrollment after age 24, whatever the age at which individuals experience them, might explain the absolute decline in the number of black males enrolled in college. The experiences of younger individuals might come into play in explaining why young black women are showing less favorable enrollment trends than white women. Likewise, the experiences of young blacks, both male and female, may help to explain the postsecondary enrollment rate's not rising in tandem with the high school graduation rate in recent years. In this last respect, however, note that the college enrollment rate of black high school graduates stopped declining about five years ago and has risen modestly since then.

This poses a puzzle, given clear evidence of a wide variety of increasingly severe social problems confronting black males. Why have those problems not been reflected in the postsecondary enrollment of young black men? Several explanations are possible. Given that the proportion of black males aged 18–24 enrolled in college is small—approximately a fifth—the other social problems to which many observers have pointed could conceivably have primarily affected the 80 percent of young black males who were not attending college regardless. Another possibility, consistent with the first, is that these other social problems are only gradually reaching the 20 percent of young black males likely to attend college and that their effects will be felt in the future. This would seem particularly likely if future data indicate that the precipitous drop in the *estimated* enrollment rate of young black males in 1988 was in fact real. A third possibility is that the worsening social problems contributed to the failure of black college enrollments to keep pace with improvements in high school

graduation rates. An important caveat with respect to this speculation, however, is that the decline in the enrollment rate of black high school graduates affected women as well as men and seems to have ended in the mid-1980s.

Still another possibility is an artifact of the way in which college enrollment rates are estimated. The increasingly severe social problems confronting young black males may be having more of a negative effect on their college enrollments than the data show because of the way in which the data are collected. These social problems may lead to an increase in the proportion of young black males excluded from the data. For example, incarcerated individuals are not included in the CPS (see appendix). If the number of individuals imprisoned increases markedly, and if those incarcerated are individuals who are unlikely to have attended college if not imprisoned, the effect of their exclusion from the CPS is to shrink the denominator of enrollment rates—and thus to inflate the estimated rates.

The divergence of enrollment rates between young blacks and whites (those aged 18–24) raises quite a different question: Why has the enrollment rate of black women not kept pace with that of white women? That the enrollment rate of white women remained lower than that of white men until 1988 may be germane. We can speculate, based on the past decade's data, that under current social conditions, enrollment rates may reach a temporary equilibrium when the rate for young females exceeds that for young males by a small margin. That point was reached by younger blacks more than a decade ago but will only be reached by younger whites in another few years, given current trends. Without more information, however, this remains only speculation; even if it is borne out by future trend data, its causes will remain unclear.

Inferences about the Effects of Specific Factors

Data on the correlates of the enrollment trends allow us to rule out several possible explanations. Although income differences may account for part of the cross-sectional difference between the two groups, it cannot account for the divergence of trends, at least until 1983 or so. Aspirations and plans of high school students also apparently offer no explanation. Changes in participation in the military have been insufficient to have had a major impact on postsecondary enrollments. Similarly, the methodological bias created by excluding

military personnel from the CPS data on which most enrollment statistics are based is too small to matter for our purposes here.

Trends in high school students' academic preparedness also offer no simple explanation of the enrollment trends and indeed sharpen it: If differences among population groups in academic preparedness have been stable or shrinking, why have enrollment rates been diverging further, rather than continuing the convergence evident before 1975? The gap between blacks and whites in participation in the academic track has remained stable since the early 1970s, despite the increase in blacks' high school completion rate. Similarly, black and Hispanic students generally kept pace with the increases in academic course work shown by whites. Perhaps most important, both blacks and Hispanics gained substantially on many standardized tests relative to whites, again despite the increase in the black high school completion rate. All other things being equal, this increase in test scores would be expected to narrow the group differences in college enrollment.

The data on academic preparedness, however, suggest a possible, partial explanation of the divergence of enrollment trends—a hypothesis that the data we present here are unfortunately insufficient to test. That is, the large remaining disparities among population groups in academic preparedness (as measured by achievement tests) and the relatively slow pace at which that gap in scores has narrowed on some tests may have contributed to the stagnation of the enrollment rates of black and Hispanic youth.

If college admissions were unlimited, the remaining differences in test scores might not be a constraint; the slow but appreciable narrowing of the test-score gap might continue to push minority enrollment rates closer to those of whites. Admissions, however, are not unlimited; even at a time of declining cohort size, a slot given to one applicant is one fewer available for others. For moderately selective and highly selective colleges as a group, increasing the admission of non-Asian minority students past a certain point requires the admission of students showing lower levels of academic preparedness than would otherwise be accepted—at least to the extent that test scores are considered a barometer of preparedness. Presumably many colleges accept that trade-off up to a certain point, either because of a view that test scores may mask the potential of some minority students, or to pursue other social goals. However, once the admission of less well–prepared students reaches a certain level, some colleges may balk at further increases. Colleges may limit the proportion of spaces they are willing to allocate to applicants who show less than

adequate preparation by some conventional criteria. The data suggest the hypothesis that such a limit may have been reached in the aggregate in the mid-1970s.

If this mechanism is in fact partially responsible for recent enrollment trends, how large a discrepancy in enrollment rates do the data on academic preparedness suggest one might expect? We would need other types of data to answer this question with any certainty, but the data do show that differences in preparedness—at least as measured by standardized tests—remain large, and if test scores were the only factor influencing admissions, we would expect large disparities in enrollments. Recall that population-group differences among college-bound students matched or exceeded those found in the student population as a whole, even though the college-bound group is smaller (and hence probably more selective) in the case of black and Hispanic students. Moreover, despite the shrinking difference between the average minority and white students, in recent years little change has occurred in the mix of population groups among students who score in the top quartile; thus, the underrepresentation of non-Asian minority students remains striking, particularly at the top end of the test-score distribution. If a selective college were to select students only on the basis of test scores, for example, and limited acceptances to the top 10 percent, the NAEP results suggests that black students would be underrepresented in the pool of acceptances by a factor of five to ten, depending on the subject areas the test emphasized.

The hypothesis that remaining differences in preparedness might have contributed to the stagnation of minority enrollments may seem more likely when we consider enrollment counts rather than rates. Recall that the divergence of enrollment rates for blacks and whites in the 18–24 age group has reflected population changes more than enrollment changes since the mid-1970s. Since 1976, the number of students has risen, though only modestly, in both groups. The divergence of enrollment rates primarily reflects the larger decrease in the white population in that age group relative to the black population during this decade. This pattern would be consistent with colleges' having a rough notion of the proportion of spaces they would allocate to non-Asian minority students despite differences in academic preparedness.[2]

[2]This enrollment pattern would be less consistent with this hypothesis, however, if colleges were to apply a mathematical correction factor to test scores in evaluating minority applicants rather than to impose a formal or informal quota.

At the same time, this mechanism, even if it is affecting enrollment rates, clearly can at most be a partial explanation. Population-group differences in test scores have continued to shrink substantially since minority enrollment rates stagnated in the mid-1970s. Although the remaining gap in scores could act as a brake on the convergence of enrollment rates, it is hard to see why it would have had such an abrupt effect and why some degree of further convergence of enrollment rates would not have occurred, although perhaps more slowly than in earlier years, as the test-score gap continued to lessen. Both these patterns suggest the operation of other factors. But note that the enrollment rate of young blacks—though not that of Hispanics—has indeed shown signs of resuming a small upward trend over the past half decade, and improvement in secondary school achievement (as measured by tests) might be contributing to this.

Unfortunately, aggregate data on enrollments and academic preparedness cannot evaluate the hypothesis that the remaining gap in academic preparedness has contributed to the stagnation of minority enrollments. For that we would need additional information, including information on the number and characteristics of students applying to colleges of various types, as well as data on the students who are accepted and on those who ultimately decide to enroll.

Finally, one important hypothesis that we do not evaluate here must be considered: that recent changes in student financial aid have contributed to the divergence of enrollment trends among population groups. Throughout the 1970s, both generally available and specifically directed financial aid increased in real terms (McLaughlin, 1988). Between 1980 and 1988, total financial aid from all sources increased more than 10 percent in real terms, although it declined somewhat during the decade's first six years (College Board, 1989; McLaughlin, 1988). However, these increases do not necessarily mean that all students in need of aid found college increasingly affordable. On the contrary, college costs rose more quickly than either aid or family income during the 1980s (College Board, 1989). Moreover, both the 1970s and the 1980s saw major shifts in the mix of types of aid available. Thus, increasing numbers of low-income minority students may have been deterred from entering college by a growing gap between costs and available aid. A convincing evaluation of that hypothesis, however, would require more information than we can obtain from the data sources analyzed here.

IMPLICATIONS FOR RESEARCH AND POLICY

Extant national data disprove the common misconception that the primary key to understanding enrollment trends lies in black males' unique experiences. The data are also sufficient to rule out several specific factors that might have been thought to be important influences on the trends. This analysis, however, raises at least as many questions as it answers. The enrollment trends are more complex than popular accounts would suggest, and there are important components of those trends for which few explanations have even been offered, let alone tested.

The analyses we present here illustrate the importance of distinguishing subgroups—males versus females, for example, and older versus younger students—in assessing trends in minority enrollments. To say merely that black enrollment rates are falling behind those of whites is as misleading as it is informative. Unfortunately, extant national data place severe constraints on more finely grained analyses. The CPS, for example, is a general-purpose social survey and therefore does not sample enough people to examine enrollment trends in certain groups in detail; even some of the results we present here push the CPS to its limits. For example, although the CPS is adequate to show that the enrollment trends of blacks are a function of both gender and age, it has too small a sample of black students to permit exploration of smaller age groups. The limits of extant data are even more serious in the case of Hispanics, both because the Hispanic population is smaller than the black population and because the term *Hispanic* subsumes several very different ethnic groups that show substantially different patterns of educational attainment (see, for example, Arias, 1986). In addition, the educational attainment of Mexican-Americans (by far the largest group in the Hispanic-American population) is strongly confounded with recency of immigration; with each generation, their attainment gets closer to the Anglo norm (McCarthy and Valdez, 1986). Put differently, the continuing immigration of Mexican-Americans with low levels of educational attainment may mask the substantial progress of those already here. These inadequacies of national data suggest the need for more focused and specialized studies of the populations of interest.

The analyses of test scores and course work we report here also raise doubts about the appropriateness of using measures of high school graduation and college enrollment, in isolation, to address broad policy questions about the academic success of minority youth. To interpret differences in these measures, as well as to generate suc-

cessful policy responses, we need to put them in the context of other measures of academic progress and success. We need to know how well prepared graduates are for admission, how much of their preparation is apparent to colleges screening applicants, and how well their secondary schooling prepares them for withstanding the pressures of college and remaining in school once admitted.

In addition, the analyses we present above underscore the importance of complementing analysis of enrollment rates with evaluation of students' progress once admitted to college. Recall that a large gap exists between whites and minorities in the proportion of young individuals who have graduated from college; moreover, the data suggest that the rate at which blacks are dropping out of college is slowly rising. Recent reports have suggested that the problem of attrition is acute for minority students at some colleges, and additional analysis is necessary to clarify the nature and scope of this problem on a national basis. In addition, a need exists for more focused research investigating the factors that lead minority students to drop out. Several institutions have already taken steps to gather such information, yielding important if unsurprising findings. Factors that have been identified include interpersonal stresses for minority students on many campuses, some students' weak preparation for the academic demands of university life, and a lack of support mechanisms—put in place either by students or by the institutions—to help students negotiate their way through the system and obtain help when needed. Additional and more systematic investigation of factors such as these, and of the impact of programs designed to counter them, could assist in the development of more effective policy responses.

To explain better the possible causes of minority enrollment trends will also require additional information about both institutions and individuals. To evaluate the hypothesis that the remaining gap in test scores is partly responsible for the stagnation of minority enrollment rates, for example, we would want information about the admissions process at different types of schools. Information about trends in the numbers and characteristics of students applying to colleges would be important; without it, one cannot ascertain the degree to which the leveling off of minority enrollments is a reflection of corresponding changes in individuals' decisions to apply, rather than changes in institutional policies. To evaluate the common hypothesis that recent reductions in grants have led many low-income minority students who otherwise would have gone on to postsecondary education to forgo it would require primarily additional information about individuals. Ideally we would want to know, for example, what

sources of aid potential minority and nonminority applicants believe is available to them, how the actual aid to which they have access compares to the costs of the colleges they apply to or enter, and what options they believe they have for taking care of any shortfall in aid.

Action to address the problems shown here, however, need not await more detailed national data. With all its limitations, the extant data have implications for policy not only at the postsecondary level, but also at the elementary and secondary levels.

The problem of minority college students' attrition has recently been confronted publicly by several colleges, and some report success in efforts to retain more minority students. That the attrition rates of blacks and Hispanics have been stable or rising, however, while the minority-white gap in academic preparedness has been shrinking, suggests that efforts to stem minority attrition have been inadequate at the national level. Clearly additional action could be taken now, even without additional, national data. For example, the programs some colleges have implemented to improve the niche of minority students on campus could be emulated, and innovative new approaches could be tried.

In addition, because the gap in academic preparedness between minority and white students, though still large, has been narrowing over the past decade and a half, postsecondary institutions could increase their minority enrollments somewhat without exceeding whatever group differences in admissions standards were in effect in the mid-1970s. However, what would be necessary for colleges to do so remains unclear, at least at a national level. Some colleges might require increased efforts to attract applications, others might need changes in financial aid policies, and still others might need to change admissions rules.

At the same time, the data suggest that further progress will be necessary before the nation will be able to achieve complete parity in enrollments across population groups without differential standards. Indeed, the data we present here raise doubts about the adequacy of policies designed to equalize postsecondary enrollments without improving the academic preparedness of minority youth. Although colleges can take important steps, the enrollment gap remains a problem that goes well beyond postsecondary education. Particularly disturbing are the findings that large differences in test scores remain between minority and white students despite nominally similar patterns of high school course work and that the gap between minority and white students is at least as large among the ostensibly college bound as in the population as a whole. The implication is that many

minority students in high school are offered curricula that are college preparatory in name only—or, to give schools the benefit of the doubt, college preparatory in intent but not effect. Simply mandating an increase in the nominal course work required for high school graduation—one cornerstone of the educational reform movement of the 1980s—will not go far to alleviate disparities among population groups in postsecondary education if the course work taken by minority students is insufficiently challenging. To solve this problem will require more than simple course work mandates. It will require diverse efforts to upgrade the content and intellectual level of the elementary and secondary education offered to minority students, as well as more successful efforts on a national basis than we have seen to date to overcome the difficulties faced by some minority students in taking advantage of the opportunities schools afford them.

Appendix
DATA SOURCES

This report's enrollment statistics are based on two data sources: the CPS and the IPEDS (formerly the HEGIS). This appendix briefly describes some characteristics of these two data sources that are important for our purposes.

The CPS and IPEDS are fundamentally different types of data. Both are subject to various limitations and potentially important sources of error. The weaknesses of the two data sources are quite different, however, so conclusions supported by both can be accepted with considerable confidence. When the two data sources disagree, however, which is more accurate is not always clear.

THE CURRENT POPULATION SURVEY[1]

All enrollment rate and entry rate statistics this report presents, as well as some enrollment counts, are based on the CPS. The CPS is a large, monthly survey of a nationally representative sample of households that the Bureau of the Census has conducted since 1948. (Predecessor surveys designed to obtain labor force statistics began in 1940). The CPS's size has been reduced in recent years; currently, 55,800 households are eligible for interviews each month, and interviews are obtained from some 95 percent of them.

The CPS is a general-purpose survey of the civilian noninstitutional population. It provides, for example, statistics on labor force participation, income, household composition, and educational attainment, as well as on enrollment in educational institutions. Regular supplements obtain information beyond that in the core survey; information on educational enrollments are obtained in the October supplement. Because of its wide range of applications, the sample cannot be tailored to maximize its usefulness for obtaining information on educational enrollments. One consequence of this is that the number of individuals sampled in some groups of interest in this report (for example, recent black high school graduates) is very

[1]The information we present here is based primarily on publications of the Bureau of Labor Statistics (1989a, undated), on unpublished documentation from the Bureau of the Census, and on personal communications from Rosalind Bruno and Paul Siegel of the Bureau of the Census.

small. Consequently, many results we report here are subject to considerable sampling error. For that reason, many CPS estimates this report presents are either weighted or unweighted three-year averages.

The restriction of the CPS to the civilian noninstitutional population has a potentially important bearing on enrollment statistics. Among the "institutional" groups excluded from the CPS are individuals on active duty with the military.[2] Thus, changes in the military population's size or character could bias enrollment rate statistics. As noted in a previous section, however, we carried out various analyses in which CPS data were combined with counts of active duty personnel from the Defense Manpower Data Center, and they indicated that the bias from omitting military personnel was unimportant for our purposes.

Another institutionalized group whose exclusion from the CPS might have some impact on enrollment statistics—particularly young males—is incarcerated individuals. If incarceration rates increase sufficiently in a given population group, such as young minority males, the effect would be to bias enrollment rates by shrinking the population base used as a denominator. The increase in incarceration would have to be large, however, to have a significant impact on enrollment trends.

Several other CPS limitations are important to bear in mind when interpreting the results this report presents. Perhaps most important, several possibly significant sources of error arise because the CPS is a household survey. Individuals may not report their enrollment status (or other information) accurately. In addition, the respondent in a household may have incomplete or inaccurate information about the enrollment of other household members. For example, a respondent may believe that another household member is enrolled in a degree-granting institution when in fact he or she is enrolled in a proprietary trade school, or vice versa.

The CPS estimates are also affected by an undercount of some groups of people. This undercount stems from several sources. The decennial census fails to count some people, and evidence suggests that the proportion of people uncounted is particularly high in the case of young minority males. This error is carried forward into the CPS, for the design and weighting of the CPS are intended to repli-

[2]Military personnel living off base are added to the CPS in some months but not in October, when educational enrollments are estimated. The Bureau of the Census uses tabulations from the DMDC to estimate the total (civilian and military) population (see Bureau of the Census, 1988, Table A-8). Those combined population estimates are not used, however, in calculating enrollment statistics.

cate census counts (apart from aging the population). If one assumes that the minority males uncounted by the census are unlikely to be college students, this error would bias estimates of minority enrollment rates upward by means of an underestimated denominator.

Additional errors of underenumeration occur within the CPS, however. A significant number of people are missed because of sampling problems (such as failure to locate new illegal housing or new mobile homes) and respondents' failure to list all individuals properly associated with their households. The undercounting specific to the CPS (that is, relative to the decennial census) affects some groups more than others. Across the population, CPS counts are an estimated 93 percent of what they should be relative to the census; for black males aged 20–24, CPS counts are only about 73 percent as great as the decennial census suggests they should be (Shapiro and Kostanich, 1988).[3] These errors could also bias estimates of minority enrollment rates. For example, if the individuals who are missed are less likely to attend college than are the people whose sample weights are increased to compensate, enrollment estimates would be inflated.

Indeed, some observers have argued that college enrollments are overestimated in the CPS for some key groups, including blacks, whether because of underenumeration or other response errors. The results in this report support that suggestion, for they show appreciably higher estimates of the total number of black males enrolled in college from the CPS than from IPEDS. In addition, response errors may help explain why CPS estimates of the split between enrollments in two- and four-year colleges do not come as close as they should to corresponding IPEDS estimates. The bias's size is unclear, however. Moreover, whether the bias has changed enough over time to affect *trends* in estimated enrollment rates appreciably is not known.

The questions included in the CPS also impose some limits for our purposes. One example is that the survey has not routinely asked about actual degree attainment. Rather, respondents are asked to identify the highest grade each individual has completed. Accordingly, the analyses under discussion here follow a convention of treating "completed four years of college" as a proxy for "graduated from college." Recent census studies have shown that this proxy falsely attributes college graduation to an appreciable number of people and that this error has become significantly worse over time (Kominski and Siegel, 1987). Moreover, individuals who obtain an associate degree in fewer than four years are missed by this measure.

[3]Also, Paul M. Siegel and Gary M. Shapiro, Bureau of the Census, personal communications, July 1990.

As yet, no alternative to this measure exists, however, and in any case the error—or the increase in error—might not substantially bias the comparisons drawn here between whites and minorities.

Another CPS limitation for our purposes is that it cannot reliably distinguish individuals with GEDs from graduates of regular secondary day programs. Whether an individual with a GED is classified as a high school graduate—or, more precisely, as having completed four years of high school—depends on the way in which the household respondent chooses to answer questions about the highest grade attended and completed. Analyses by the Bureau of the Census suggest that perhaps 80–85 percent of individuals with GEDs end up being classified as having completed four years of high school.

Another, more elusive limitation arises in distinguishing "regular" from "irregular" postsecondary schooling. The October supplement to the CPS asks respondents a series of questions intended to obtain information about "regular" schooling. Regular schooling is considered enrollment in schools that are "part of a recognized regular school system" and that advances an individual "toward an elementary school certificate, high school diploma, or college or professional school degree."[4] The actual questionnaire, however, has not traditionally made this explicit. Rather, the interviewer must sort out regular from irregular enrollments.

This has two consequences for our purposes here. First, some fraction of regular or irregular enrollment may be misclassified. Unless a change over time in this misclassification occurs, it should not bias estimates of differential trends between population groups. However, it could more easily bias estimates of cross-sectional differences among groups. Second, the questions as currently asked do not provide data on trends in irregular enrollments, an issue currently of considerable importance in higher education policy.

THE INTEGRATED POSTSECONDARY EDUCATION DATA SYSTEM

The IPEDS data are based on a survey of institutions rather than a survey of households. For this reason, IPEDS can avoid some sources of error that could affect the CPS, such as respondents misclassifying the schools that other household members attend. On the other hand, the IPEDS data are subject to other forms of error, particularly when they are used with the earlier HEGIS data to estimate trends.

[4]Quotes are from the October 1988 unpublished instructions to CPS interviewers included in *CPS Field Representative's Memorandum No. 88-14.*

Currently, some 7700 institutions receive the IPEDS Fall Enrollment Survey. These schools are intended to represent the universe of four-, two-, and public less-than-two–year institutions, as well as a sample of private less-than-two–year institutions (National Center for Education Statistics, 1988b, App. B). The institution is responsible for the classification of students as white, black, or Hispanic.

We should keep in mind several potential sources of error when interpreting IPEDS and HEGIS data. One is that the universe of schools can be flawed in that schools may be missed. This error seems unlikely to be significant for our purposes. Another potential error is that schools do not always respond. In 1986, roughly 20 percent of institutions did not respond to the survey, though estimates are that the proportion of students missed is far smaller (National Center for Education Statistics, 1988b, App. B).

When schools fail to respond, their data are imputed based on other information. A potential source of bias in trend estimates of the sort we present here is that the method for imputing enrollments has changed over time. The HEGIS data were imputed based on the last year of available data for each nonrespondent institution, while IPEDS data are imputed using a "hot deck" procedure that matches each nonrespondent institution with a similar responding institution (see, for example, Center for Education Statistics, 1988; National Center for Education Statistics, 1988b, App. B).

Finally, and perhaps most important, IPEDS estimates could be biased by errors in reporting of population group membership by schools. In early years, one form this error took is that the number of students for whom population-group membership was reported fell short of the total number of students (Hill, 1983). That underreporting has nearly disappeared, but how the students whose population-group membership is unknown to the schools are reported, and for what proportion of students the schools' classifications are incorrect, remains unclear. To the extent that schools rely on students' self-reports for this information, the proportion of students whose group membership is unknown could be considerable. (For example, in recent years, the proportion of students taking the SAT who fail to identify their population-group membership has ranged from 12 to 14 percent; see Wainer, 1988.) Particularly if schools have changed their classification of unidentified students over time, this could be a substantial source of bias, the magnitude of which cannot be estimated.

REFERENCES

American Council on Education, *GED: The 1986 Statistical Report,* Washington, D.C., 1986.

———, *Minorities in Higher Education: Seventh Annual Status Report,* Washington, D.C., 1988.

Arbeiter, S., *Minority Enrollment in Higher Education Institutions: A Chronological View,* Research and Development Update, The College Entrance Examination Board, New York, 1986.

Arias, B., "The Context of Education for Hispanic Students: An Overview," *American Journal of Education,* Vol. 95, No. 1, 1986, pp. 26–57.

Bureau of Labor Statistics, "Employment Status of School Age Youth, High School Graduates and Dropouts," U.S. Department of Labor, Washington, D.C., 1987.

———, *Labor Force Statistics Derived from the Current Population Survey, 1948–87,* U.S. Department of Labor, Washington, D.C., 1988.

———, *Employment and Earnings,* U.S. Department of Labor, Washington, D.C., 1989a.

———, *Nearly Three-Fifths of the High School Graduates of 1988 Enrolled in College,* U.S. Department of Labor, Washington, D.C., 1989b.

———, "Labor Force, Employment, and Unemployment from the Current Population Survey," excerpted from *BLS Handbook of Methods,* Bulletin 2285, U.S. Department of Labor, Washington, D.C., undated.

Bureau of the Census, *Social and Economic Characteristics of Students,* 1976, Series P-20, No. 319, U.S. Department of Commerce, Washington, D.C., 1978.

———, *Social and Economic Characteristics of Students, 1986,* Series P-20, No. 429, U.S. Department of Commerce, Washington, D.C., 1988.

———, *Social and Economic Characteristics of Students,* Series P-20, U.S. Department of Commerce, Washington, D.C., various years.

Center for Education Statistics, *Trends in Minority Enrollment in Higher Education, Fall 1976–Fall 1986,* CS-88-201, U.S. Department of Education, Washington, D.C., 1988.

Chaikind, S., *College Enrollment Patterns of Black and White Students,* Decision Resources Corporation, Washington, D.C., 1987.

Cohen, R., "The Boston Distraction," *The Washington Post,* January 11, 1990.

College Board, *Trends in Student Aid: 1980 to 1989,* The Washington Office of the College Board, Washington, D.C., 1989.

———, *College-Bound Seniors,* New York, various years.

Cooper, K. J., "Drop in Black College Enrollment Traced Partly to Military Service," *The Washington Post,* January 15, 1990.

Goldstein, A., "Effort Urged to Put More Black Males in College," *The Washington Post,* January 14, 1990.

Hauser, R. M., *Notes on the Distribution of Schooling in the Black Population: 1940–1980,* CDE Working Paper 86-8, Center for Demography and Ecology, University of Wisconsin, Madison, 1986.

———, *College Entry Among Black High School Graduates: Family Income Does Not Explain the Decline,* CDE Working Paper 87-19, Center for Demography and Ecology, University of Wisconsin, Madison, 1987a.

———, *Post-High School Plans of Black High School Graduates: What Has Changed Since the Mid-1970s?* CDE Working Paper 87-26, Center for Demography and Ecology, University of Wisconsin, Madison, 1987b.

Hauser, R. M., and D. K. Anderson, *Post-High School Plans and Aspirations of Black and White High School Graduates: What Has Changed Since the Mid-1970s?* CDE Working Paper 89-15, Center for Demography and Ecology, University of Wisconsin, Madison, 1989.

Hexter, H., and E. El-Khawas, *Joining Forces: The Military's Impact on College Enrollments,* American Council on Education, Washington, D.C., 1988.

Hill, S. T., *Participation of Black Students in Higher Education: A Statistical Profile from 1970–71 to 1980–81,* NCES 83-327, ERIC ED 236 991, National Center for Education Statistics, Washington, D.C., 1983.

Kominski, R., "What Is the National High School Dropout Rate?" U.S. Bureau of the Census, Washington, D.C., March 1989.

Kominski, R., and P. M. Siegel, "Measuring Educational Attainment in the 1990 Census," paper presented at the annual meeting of the American Sociological Association, Chicago, 1987.

Koretz, D., *Trends in Educational Achievement,* Congressional Budget Office, Washington, D.C., 1986.

Lee, V., *Access to Higher Education: The Experience of Blacks, Hispanics and Low Socio-Economic Status Whites,* American Council on Education, Washington, D.C., 1985.

Malizio, A. G., and D. R. Whitney, *Who Takes the GED? A National Survey of Spring 1980 Examinees,* American Council on Education, Washington, D.C., 1981.

Marshall, G. A., "Racial Classifications: Popular and Scientific," in M. Mead et al. (eds.), *Science and the Concept of Race,* Columbia University Press, New York, 1968, pp. 149–164.

Massachusetts Department of Education (Bureau of Research and Assessment), *The High School Experience in Massachusetts,* Publication 14438-74-500-5-86, Boston, 1985.

McAllister, B., "To Be Young, Male, and Black: As Group's Problems Worsen, Fatalistic Attitude Is Widespread," *The Washington Post,* December 28, 1989, pp. A1, A4.

McCarthy, K. F., and R. B. Valdez, *Current and Future Effects of Mexican Immigration in California,* The RAND Corporation, R-3365-CR, 1986.

McLaughlin, M. A., *Trends in College Tuition and Student Aid Since 1970,* Congressional Budget Office, Washington, D.C., 1988.

Mingle, J. R., *Trends in Higher Education Participation and Success,* Education Commission of the States and the State Higher Education Executive Officers, Denver, Colo., 1987.

National Assessment of Educational Progress, *Technical Report: Changes in Student Performance by Achievement Class and Modal Grade,* Education Commission of the States, Denver, Colo., 1982.

———, *The Mathematics Report Card: Are We Measuring Up?* Educational Testing Service, Princeton, N.J., 1988a.

———, *The Science Report Card: Elements of Risk and Recovery,* Educational Testing Service, Princeton, N.J., 1988b.

National Assessment of Vocational Education, *First Interim Report from the National Assessment of Vocational Education,* U.S. Department of Education, Washington, D.C., 1988.

National Center for Education Statistics, *Digest of Education Statistics: 1988,* U.S. Department of Education, Washington, D.C., 1988a.

———, *Fall Enrollment in Postsecondary Education: National Estimates for Fall 1987 and Reported Data for Fall 1986,* CS 88-223, U.S. Department of Education, Washington, D.C., 1988b.

———, *Postsecondary Fall Enrollment, 1986,* CS 88-215, U.S. Department of Education, Washington, D.C., 1988c.

———, *Dropout Rates in the United States: 1988,* NCES 89-609, U.S. Department of Education, Washington, D.C., 1989.

The New York Times, "Ranks of Black Men Shrink on U.S. Campuses," February 5, 1989, p. 1.

Pelavin, S. H., and M. B. Kane, *Minority Participation in Higher Education,* Pelavin Associates, Inc., Washington, D.C., 1988.

Shapiro, G. M., and D. Kostanich, "High Response Error and Poor Coverage Are Severely Hurting the Value of Household Survey Data," paper presented at the annual meeting of the American Statistical Association, New Orleans, La., 1988.

Tuma, J. E., et al., *Course Enrollments Patterns in Secondary Schools: 1975 to 1987,* MPR Associates, Inc., Berkeley, Calif., 1989.

Wainer, H., "How Accurately Can We Assess Changes in Minority Performance on the SAT?" *American Psychologist,* Vol. 43, No. 10, 1988, pp. 774–778.

Westat, Inc., *High School Transcript Analysis: The 1987 Graduates,* Rockville, Md., 1988.

Zemsky, R., "The Goal of Diversity: Access and Choice in Academia," paper delivered at the Public Policy Conference on Quality, Diversity, and Budgetary Efficiency, College of William and Mary, Williamsburg, Va., October 1988.